Appendix E
PG&E Natural Resources–Related Studies

Energy Renewal
PARTNERS, LLC

Transmission Line Natural Resources Assessment Report

Panoche Valley Solar Project
San Benito County, California

October 2014

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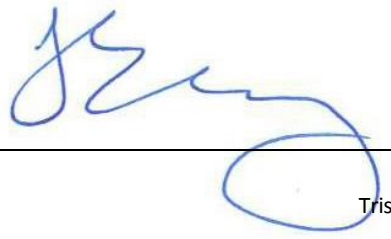

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1.0 Introduction

Panoche Valley Solar, LLC (PVS) proposes to construct and operate an approximate 247 megawatts (MW) solar photovoltaic energy generating facility located in San Benito County, California (Figure 1). The project would be called the Panoche Valley Solar Project (Project); the Project Footprint (Project Area) is approximately 2,506 acres in the Panoche Valley of eastern San Benito County, California, and would also include approximately 23,292 acres of Conservation Lands that are contiguous with the Project Area in San Benito and Fresno counties (Figure 1).

Due to the construction of the Project, Pacific Gas and Electric (PG&E) proposes to install optical ground wire (OPGW) on its existing Panoche-Moss Landing 230 kilovolts (kV) transmission line to establish the primary telecommunication service between the substation at the Project Footprint and Panoche Substation located 17 miles to the east of the Project. Locations of temporary study areas and permanent features needed to connect the Project's switchyard into the Panoche-Moss Landing 230 kV transmission line are shown on Figure 2.

This installation process is a routine method of providing telecommunication services between electrical substations and generating facilities or other substations and is considered maintenance to existing electrical infrastructure. The OPGW lines can be installed on existing towers with minimal or no modification to the existing towers. The purpose of the OPGW is for system protection and control of the transmission line. The OPGW line to be installed is designed to replace traditional shield wire, which protects the line by providing a path to ground, by handling electrical faults like shield wire with the added benefit of containing optical fibers which can be used for telecommunications purposes. The work along the transmission line will be of short duration at any one site (two to three weeks) and the entire installation of OPGW is planned to be completed in approximately 12 to 16 weeks.

Based on feedback expressed by the County of San Benito to support preparation of a Supplement Environmental Impact report (EIR), the Project conducted a 100 percent coverage survey of planned areas of ground disturbance associated with proposed PG&E telecommunication upgrades. Areas of planned ground disturbance were surveyed to evaluate for sensitive species known to occur in San Benito and Fresno counties, cultural resources, and state and federal jurisdictional waters. The results of the cultural resources surveys are provided in a separate report.

This survey was conducted based on planned work areas provided by PG&E as of September 15, 2014, and this subsequent report is based upon work areas provided at that time. Based on discussions with PG&E since the time of this report, modifications have been made regarding the locations of certain work areas. These changes have not been addressed in this report, but will be documented in a supplemental memorandum of this report.

2.0 Study Areas

Work activities associated with PG&E telecommunications upgrades are mostly considered temporary and will be completed during daylight hours. It is planned that existing roads and helicopters will be used to provide access to work areas wherever possible. The proposed work areas anticipated to have temporary ground disturbance include 12 temporary wire pull sites, three temporary landing zones, eight temporary guard structures, and nine wood pole temporary work areas.

Included in the survey area is a 500 foot (ft) buffer around each planned area of ground disturbance. For work areas located within proximity to one another, where the 500-ft buffers of the disturbance points overlapped, the buffers were dissolved together rather than each disturbance point having a distinct and separate 500-ft buffer. Due to this method of combining overlapping buffer areas, rather than survey 34 individual work areas along the transmission line ROW, surveys were conducted on 13 larger survey areas along the ROW. These 13 larger areas are referred to as "study areas", each with an assigned number for the purposes of this report (Figure 2). Table 1 outlines the study areas as they were grouped in the survey and as they are discussed throughout the remainder of this report.

Table 1. Study Area Descriptions

Study Area	Study Area Description	Disturbance/Work Area Acreage (approx.)	Study Area Buffer Acreage (approx.)
Work Area 1	AT&T Cable Site	0.02	20
Work Area 2	Landing Zone 1	0.34	24
Work Area 3	Wire Pull Sites 1 and 2	0.26	40
Work Area 4	Wire Pull Sites 3, 4, and 5	0.26	56
Work Area 5	Wire Pull Sites 6 and 7	0.26	39
Work Area 6	Wire Pull Sites 8 and 9, ADSS Wood Pole 1	0.29	30
Work Area 7	ADSS Wood Poles 2-9, Guard Structures 1-3, Wire Pull Site 10 and 11	1.01	116
Work Area 8	Landing Zone 2	0.34	24
Work Area 9	Guard Structures 4 and 5	0.34	26
Work Area 10	Guard Structures 6 and 7	0.34	29
Work Area 11	Guard Structure 8	0.17	22
Work Area 12	Substation OPGW underground work area, Wire Pull Site 12	2.19	49
Work Area 13	Landing Zone 3	0.34	24

The purpose of surveying a 500-ft buffer (the buffer) around each area of planned disturbance is to provide flexibility for field teams to move proposed work areas if the original position is within an area with potential to disturb sensitive resources.

The habitats within the study areas and the vicinity are comprised of annual, non-native grasslands used mainly to graze livestock in the western study areas (Study Areas 1-3), while ephedra and Allscale saltbush scrub habitat dominated the central most study areas (Study Areas 4-6). The eastern portion of the transmission upgrade project area was noted to be disturbed due to the development of agricultural (e.g. almond orchard, vineyard) and transportation (Interstate 5 and public roadways) purposes (Study Areas 7-13). Additional details on the habitat at each study area is described in Section 4.0 below. The study areas experience a Mediterranean climate with dry hot summers and cool wet winters. However, this region does not experience heavy rainfall. Annual precipitation in the general vicinity of the study areas range from eight to ten inches per year. Approximately 85 percent of precipitation falls between October and March. Temperatures average approximately 80 degrees Fahrenheit (˚F) in the summer and 40˚F in the winter, mid-summer temperatures are often over 100˚F, and winter lows can be close to freezing. Nearly all precipitation infiltrates into the site's soils and flows in creeks and drainages when soil capacity has been reached.

2.1. AT&T Cable Site

AT&T will install new cable underground in the shoulder of Little Panoche Road from an existing connection point located 2,000 feet south of the Project Footprint to the site. The temporary work site will include the construction of a two feet wide by three feet deep trench to allow direct burial of the cable in compliance with state and local standards. The total area to be temporarily disturbed due to the AT&T cable installation for the project is approximately 0.02 acres. This acreage does not include the buffer area surveyed for the AT&T cable installation. The installed cables will then connect to a Network Interface Unit (NIU) measuring approximately 36 inches tall by 12 inches wide by 12 inches deep, which will be placed at the end of the cable trench line near the Project Footprint.

2.2. Wire Pull Sites

The 12 temporary wire pull sites established along the 17-mile transmission line corridor will require minor ground disturbance that should not result in permanent impact to sensitive natural and cultural resources within each necessary temporary wire pull site. Each proposed temporary wire pull site will require a work area of approximately 75-ft by 75-ft (0.13 acres) located mid-span of existing tower sites within the transmission right-of-way (ROW). The total area to be temporarily disturbed due to the wire pull sites for the project is approximately 1.42 acres. This acreage does not include the buffer area surveyed for potential wire pull sites for this project. Criteria used in selecting the final wire pull sites will include vehicle accessibility, presence of flat or nearly flat terrain adjacent to the existing transmission line route for equipment set-up, and an area that will avoid or minimize impacts to sensitive species or their habitats and other resources that would restrict work.

2.3. Landing Zones

Helicopters will be used to transport electrical workers to towers, deliver materials, and assist in pulling the OPGW from tower to tower. As presently planned, three 150-ft by 100-ft landing zones (0.34 acres) will be constructed approximately every five miles. The total area to be temporarily disturbed due to the landing sites is approximately 1.02 acres. This acreage does not include the buffer area surveyed for potential landing zones for this project. The criteria used for selecting the helicopter included an area of ground with the right topography to stage materials, pick up and transport electrical personnel and equipment, and refuel the helicopters. Establishment of these landing zones will require minimal ground disturbance and will facilitate the use of helicopters to reduce the overall impacts associated with the proposed work.

2.4. Guard Structures

Eight temporary guard structures will be necessary due to the installation of the telecommunication upgrades. The guard structures are designed to prevent tools or materials from falling into the roadway or utility, are required for overhead crossings of public roadways or existing utilities. Guard structures generally consist of two to four wooden poles and cross beams attached between the poles. They are typically installed in pairs with a net strung between them. The wooden poles will be augured and set by a line truck. Poles are anticipated to be placed in or adjacent to the disturbed road shoulder in an approximately 75-ft by 75-ft area (0.17 acres). The total area to be temporarily disturbed due to the guard structure installation sites is approximately 1.36 acres. This acreage does not include the buffer area surveyed for potential guard structure sites for this project. Installation of guard structures is not anticipated to require grading or vegetation removal, and guard structure poles will be removed following OPGW installation and the holes backfilled.

2.5. Wood Poles

Due to the existing 230 kV transmission line crossing under two existing 500 kV transmission lines, a section of approximately 4,650 feet of the 230kV will require installation of approximately nine new wood poles within the existing ROW. Within this 4,650 foot section, an All-Dielectric Self-Supporting (ADSS) fiber optic cable would be spliced from the 230 kV towers to the east and west sides of the 500 kV transmission line corridor and attached to the nine new wood poles. The poles will be located at a 30-ft to 40-ft offset to the existing 230 kV centerline and within the ROW. Installation of these poles will require a work area of 30-ft by 40-ft each (0.03 acres per pole installation site) to accommodate one crew truck and a trailer truck to transport each pole to the site, and a line truck to auger a hole about eight-feet deep and two-feet wide. The total area to be temporarily disturbed due to the wooden pole installation sites is approximately 0.27 acres. This acreage does not include the buffer area surveyed for potential wood pole sites for this project. Installation of the wooden poles is not anticipated to require grading or vegetation removal. However, the wooden poles themselves will remain in place as permanent structures but have a minimal overall impact footprint.

2.6. Optical Ground Wire Underground Installation

A section of approximately 75-ft by 1,200-ft (2.06 acres) will require for the installation of a section of OPGW underground within the existing ROW paralleling West Panoche Road, entering the eastern existing substation. This acreage does not include the buffer area surveyed for the potential OPGW underground installation site for this project. Installation of this underground section will require the above stated work area to accommodate the necessary equipment to either bore or trench the OPGW to the existing substation connection point. The total area to be temporarily disturbed due to the installation, however, the site will be restored to its original contours and elevations upon completion of the installation.

3.0 Transmission Line Assessment Methods

The following general methods for state and federal protected species surveys were used to inventory the study areas within the transmission line upgrade project area.

3.1. Sampling Location Selection

Locations for the necessary work areas were selected by PG&E based on topography, access and the constraints of splicing and pulling OPGW with a helicopter. Study areas were then created using a 500-ft buffer around each chosen work area.

3.2. Compile Existing Information

Prior to conducting the field assessments, existing information concerning sensitive species with potential to occur in the San Joaquin Valley was reviewed. Special status species with potential to occur are provided in Appendix A. Based on preliminary desktop review of potential sensitive species, surveyors evaluated each study area for indications/signs of the absence or presence of the following federally endangered, federally threatened, and/or California fully protected species or their habitats: longhorn fairy shrimp (*Branchinecta longiantenna*; LHFS), conservancy fairy shrimp (*Branchinecta conservation*; CFS), vernal pool fairy shrimp (*Branchinecta lynchi*; VPFS), vernal pool tadpole shrimp (*Lepidurus packardi*; VPTS), blunt-nosed leopard lizard (*Gambelia sila*; BNLL), California red-legged frog (*Rana draytonii*; CRF), California tiger salamander (*Ambystoma californiense*; CTS), golden eagle (*Aquila chrysaetos*; GOEA), white-tailed kite (*Elanus leucurus*; WTKI), California condor (*Gymnogyps californianus*; CACO), giant kangaroo rat (*Dipodomys ingens*; GKR), San Joaquin kit fox (*Vulpes macrotis mutica,* SJKF), San Benito evening-primrose (*Camissonia benetensis*), California jewel-flower (*Caulanthus californicus*), and San Joaquin woollythreads (*Monolopia congdonii*). In addition to these federally endangered, federally threatened, and/or California fully protected species, surveyors evaluated each study area for indications/signs of the absence or presence of other special status species or their habitats listed in Appendix A.

<u>Longhorn Fairy Shrimp</u>

The LHFS is currently listed as endangered under the Federal Endangered Species Act (ESA). Male LHFS are distinguished from other fairy shrimp by the second antennae, which is about twice as

long, relative to its body size, as the second antennae from other species. Females are distinguished by their cylindrical brood pouch that extends below abdominal segments six and seven. Helm (1998) conducted a survey for fairy shrimp, during which LHFS were identified in alkaline pools and rock outcrop pools. Pools containing LHFS ranged from 4.6 to 2,788 m^2 with an average of 678 m^2. Pool depths ranged from 10 to 40 cm and averaged 23.1cm. Additionally, pools inhabiting LHFS generally had a near neutral pH, and temperatures ranging from 10 to 28°C. All pools with extant populations dry out during the summer and fall, which is required for the inundation cycle of LHFS to trigger hatching. The LHFS is very rare and only known from eight distinct populations in San Luis Opisbo, Merced, Contra Costa, and Alameda Counties (USFWS 2005).

Conservancy Fairy Shrimp

The CFS is currently listed as endangered under the ESA. The CFS is distinguished from other fairy shrimp by variations on the male's second antennae, which has a shorter distal segment than basal segment and is bent approximately 90°, and the female's brood pouch, which is tapered on each end and extends to the eighth abdominal segment (Eng et al. 1990). The CFS is generally off-white to gray with potential for green or yellow on the brood pouch. Suitable habitat for CFS includes vernal pools, alkaline pools, and vernal lakes (Helm 1998). The average pool size for CFS is 27,865 m^2, which is larger than all other endemic California brachiopods. Pools occupied by CFS commonly have low alkalinity, low total dissolved solids, a near neutral pH, and are dominated by native vernal pool plants (USFWS 2005). Similarly to the LHFS, CFS requires a dry period in the summer and fall for inundation to trigger hatching.

Vernal Pool Fairy Shrimp

The VPFS is currently listed as threatened under the ESA. The VPFS are distinguished from other fairy shrimp by the presence and size of several mounds on the male's second antennae and by the female's short, pyriform brood pouch. VPFS are typically a translucent off-white to grey and vary in size from 11 to 25 mm in length (Eng et al. 1990). Helm (1998) found VPFS in 21 different types of habitat, including vernal pools, vernal swales, alkaline pools, and road-side ditches. Optimal pools tend to be a neutral to slightly alkaline pH, have low dissolved salts, and are dominated by native vernal pool plants. Additionally, all pools must have a dry period in the summer and fall to enable the inundation cycle to trigger hatching.

Vernal Pool Tadpole Shrimp

The VPTS is currently listed as an endangered species under the ESA. The VPTS is identified by a large, shield-like carapace that covers the anterior half of the body. They have 30 to 35 pairs of phyllopods, a segmented abdomen, and paired cercopods or tail-like appendages. Mature VPTS range from 15 to 86 mm (USFWS 2005). VPTS are typically green, but coloration may vary from clear to tan, depending on water clarity (Yolo Natural Heritage Preserve 2009). Helm (1998) found VPTS in 17 different types of habitat, including alkaline pools, vernal pools, vernal swales, ditches, road ruts, and stock ponds. Average occupied pool size was 1,828 m^2, and occupied pool depth ranged from two to 151 cm, with an average of 15.2 cm. Optimal pools are neutral to slightly

alkaline, clear, low in dissolved solids, and dominated by native vernal pool plants. Unlike other vernal pool crustaceans, VPTS eggs do not require a dry period before hatching, although they do require inundation.

Blunt-nosed Leopard Lizard

The BNLL are already known to occur in the Project's conservation lands and are currently listed as endangered under the ESA and by the California Endangered Species Act (CESA). BNLL are quite often the largest lizard throughout its range, and coloration can vary greatly. Background colors on the dorsal surface can range from yellowish, light gray or dark brown depending on the surrounding soil and vegetation. The ventral surface is uniformly white. The color pattern on the back consists of longitudinal rows of dark spots interrupted by white, cream, or yellow bands. These cross bands can aid in distinguishing the BNLL from other leopard lizards; the cross bands of the BNLL are much broader, more distinct, and extend from the lateral folds on each side of the body.

One common characteristic of most BNLL habitat is sparse vegetation, though vegetation does not preclude this species. BNLL rely mainly on speed to avoid predators and catch prey. A thick cover of herbaceous vegetation impedes BNLL movement, making them more vulnerable to predators and less likely to capture prey. In areas with thick herbaceous vegetation, BNLL will utilize barren washes and roads (Warrick et al. 1998). Adult BNLL emerge from below ground dormancy in early- to mid-April and remain active into July and August (Germano and Williams 2005, CDFG 2004). The BNLL is generally absent from areas of steep slopes and dense vegetation, and areas subject to seasonal flooding (USFWS 2010).

California Red-legged Frog

The CRF is currently listed as a threatened species under ESA. The CRF is a medium-sized frog with smooth skin, webbing on the hind feet, and ridges on the sides of the frog. The CRF is reddish-brown or brown, gray, or olive with small lack spots on the back and sides and dark banding on the legs. The hind legs and lower belly are red underneath, and the chest and throat are creamy and marbled with dark gray. Tadpoles are brown and marked with small dark spots, creamy white coloring with small specks on the lower body, and often rows of dorsolateral lights spots running back from behind the eyes (Nafis 2014).

The CRF is typically found in or near water in humid forests, woodlands, grasslands, coastal scrub, and streamside habitats, but do move overland at times and can be found in damp places far from water, including cool and moist bushes. Breeding habitat is in ephemeral water sources including lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. The CRF is typically found active all year except in wetlands that dry out in summer, where frogs will estivate in moist refuges until the late fall rains. Breeding occurs from late November to April, depending on the location (Nafis 2014).

California Tiger Salamander

The CTS is currently considered a threatened species under ESA and is a state threatened candidate under CESA. The CTS is characterized by a broad head, small eyes, and tubercles on the side of the feet. Coloration is a black back with yellow, cream, or white oval spots or bars. Some individuals may have a prominent cream band on the undersides. Snout-vent length ranges from 7.6 – 12.7 cm, and total length ranges from 15 – 22 cm (Stebbins 1966; 2003).

Ephemeral vernal pools, which refill with water on a yearly basis, that are 40 – 80 cm in depth and have a surface area of 0.2 hectares or more are optimal for breeding CTS; although small, shallower pools will also house breeding CTS (Stokes et al. 2008). Stokes et al. (2008) found no CTS larvae in pools with an average depth of less than 22 cm. There is a narrow range of pool depths where the pool will not completely dry out before CTS have metamorphosed, but also not contain water year round and house predators. Metamorphosed CTS move out of the vernal pools and into upland habitats. Small mammal burrows are important features of upland habitat. Adult CTS occupy small mammal burrows in grassland, savanna, or open woodland habitats (Trenham and Shaffer 2005). Adults can generally be found at breeding pools from October through May, although breeding is highly dependent on the amount of precipitation (Trenham et al. 2001; Trenham and Shaffer 2005). Adult CTS leave the breeding pools in late spring and return to upland habitats. CTS larvae were observed in two off-site ponds during CTS Protocol Larval Surveys during the 2009-2010 rainy seasons.

Golden Eagle

The GOEA is currently listed as a state fully protected species. The GOEA is one of the largest birds in North America with a wingspan of up to 220 cm. The GOEA has broad wings with a relatively small head and long tail. Adults are dark brown with a golden sheen on the back of the head and neck. For the first several years, juveniles have a defined white patch at the base of the tail and wings. The GOEA are generally found alone or in pairs, soaring with wings slightly lifted and wingtip feathers spread apart (Cornell Lab of Ornithology 2014).

The GOEA are known to inhabit partial or complete open country, particularly near mountains, hills, and cliffs. GOEA are known to use a variety of habitats including tundra, shrublands, grassland, coniferous forests, farmland, and along rivers and streams. The GOEA nest in trees and on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas (Cornell Lab of Ornithology 2014).

White-tailed Kite

The WTKI is currently listed as a state fully protected species. The WTKI is a medium-sized raptor with a wingspan of up to 38 cm. The WTKI has long, narrow, pointed wings and a long white tail. The back and wings of the WTKI is gray, while the face and underside are white. A black spot can be seen on inner portion of wings. WTKI have red eyes as adults and yellow eyes as juveniles. Juveniles look similar otherwise but have buffy streaks on the breast and head, and gray with white-tipped feathers on the back (Cornell Lab of Ornithology 2014).

The WTKI is often found in savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields. Areas with extensive winter freezes are avoided, but rainfall and humidity vary greatly throughout the bird's range. Hunting is done over lightly grazed or ungrazed fields. The WTKI typically nests in the upper third of trees that may be 3-49 m tall. Nesting trees may be open-country trees in isolation or within a forest. Characteristic hunting behavior consists of the WTKI hovering in a stationary position up to 24 m off the ground before dropping straight down onto prey (Cornell Lab of Ornithology 2014).

California Condor

The CACO is currently considered a fully protected species, as well as a state and federally endangered species. With a wingspan of 2.8 meters and a broad, wedge-shaped tail, the CACO is the largest soaring bird in North America and one of the largest flying birds in the world. Adult birds are generally black, with mostly bald heads and necks. The bill is long, hooked at the end, and enveloped with flesh along the majority of its length. A feathered ruff is located at the base of the neck into which the neck and lower head can be withdrawn in order to warm the bird. White feathers of the underwing coverts and white tips on the upperwing coverts produce an elongated triangle on the leading half of the wing undersides and a white bar on the upperwing, respectively (Cornell Lab of Ornithology 2014).

The CACO is a habitat generalist, nesting in areas as diverse as chaparral and snow-covered montane forests. Nesting sites typically occur in cliff cavities, large rock outcrops, and large trees. Roosting sites are usually nearby (Snyder and Schmitt 2002, USFWS 1996). Both types of sites require isolation from human disturbance. The CACO locates its food by sight, not olfactory receptors, so open areas with little brush to conceal carrion are required. Cliffs and tall conifers, including dead snags, are generally utilized as roost sites. The closest known nests are located in the Pinnacles to the southwest of the project.

Giant Kangaroo Rat

GKR are already known to occur in the Project Footprint and Project's conservation lands and are currently listed as endangered under the ESA and by the CESA. The GKR is large relative to other rodents in the area, and has a brownish coloration with a light brown tail tip. The Panoche Region in western Fresno and eastern San Benito Counties is currently identified as one of the six major geographical units for remaining GKR populations (USFWS 1998).

GKR live in burrow systems referred to as precincts; a typical precinct has three burrows that are independent of one another and not interconnected (Williams and Kilburn 1991). The GKR is primarily a seed-eater, but occasionally consumes green plants and insects. Foraging takes place year round in all types of weather from around sunset to near sunrise, and most activity takes place within two hours of sunset. The ability to transport large quantities of seeds in cheek pouches, coupled with the highly developed seed curing and caching behaviors, probably allows GKR to endure prolonged droughts of one or two years without major regional population effects (Williams et al. 1993).

San Joaquin Kit Fox

SJKF are already known to occur in the Project Footprint and Project's conservation lands and are currently listed as endangered under the ESA and threatened by the CESA. The kit fox is the smallest canid species in North America, and the SJKF is the larger of the two subspecies. Kit foxes have a relatively small, slim body, large ears set close together, and a long, bushy tail tapering toward the tip. The tail is usually carried low and straight. The most common colorations are described as buff, tan, or yellowish-gray on the body. Two distinctive coats develop each year: a tan summer coat, and a silver-gray winter coat. The tail is distinctly black tipped.

Preferred habitat is often dependent on the density of kangaroo rats and lagomorphs, the two favored prey items of SJKF. SJKF occupy several dens throughout their home range during the year. Dens are usually modified ground squirrel, badger, or coyote dens and can be up to 2.3 m deep (Tannerfeldt et al. 2003).

San Benito Evening-primrose

The San Benito evening-primrose is currently considered threatened by the ESA and is included in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants on list 1B.1. The San Benito evening-primrose is an annual herb with peeling stems ranging from 3 to 20 cm long and wiry branches. Leaves are narrow and 7 to 20 mm long with small, sharp-toothed edges. Flowers contain four sepals that are approximately 3.3 mm long and four petals that are approximately 3.7 mm long. Petals are yellow and fade to reddish, and have two red dots at the base. Bloom period for the species is April to June. The San Benito evening-primrose is typically located in areas with soils that are slightly saline with a pH of 6 to 8.6 on serpentine alluvial terraces within the Clear Creek and San Carlos Creek drainages. It has been observed at elevations ranging from 630 to 1,410 meters above sea level, in areas with precipitation ranging from 43 to 63.5 cm (BLM 2010, Calflora 2014).

California Jewel-flower

The California jewel-flower is currently considered endangered by the ESA and CESA, and is included in the CNPS Inventory of Rare and Endangered Plants on list 1B.1. The California jewel-flower is an annual herb with basal and non-basal leaves. Basal leaves are wavy with a winged stem and are generally less than 11 cm long. Non-basal leaves are pear-shaped to round, with toothed edges. Flowers have 4 to 8 sepals ranging from 4 to 10 mm in length, and whitish petals with purple veins that are 6 to 11 mm long. Bloom period for the species is February to March. The California jewel-flower is generally located in flat, gently sloping areas in shadscale scrub, valley grassland, and pinyon-juniper woodland communities. It has been observed at elevations ranging from 68 to 975 meters above sea level (BLM 2010, Calflora 2014).

San Joaquin Woollythreads

The San Joaquin woollythreads is currently considered endangered by the ESA, and is included in the CNPS Inventory of Rare and Endangered Plants on list 1B.2. The San Joaquin woollythreads is a

woolly annual herb. The San Joaquin woollythreads are generally 5 to 30 cm long with smooth, narrow leaves approximately 1 to 4.5 cm long with wavy edges. The ray flowers have 3-lobed yellow petals, and the disks of the flowers are 4-lobed, yellow, and bell-shaped. Blooming period for this species is February to May. The San Joaquin woollythreads are generally found in sandy or clayey grasslands. San Joaquin woollythreads have been observed at elevations ranging from 60 to 750 meters above sea level (BLM 2010, Calflora 2014).

3.3. Sensitive Species Assessment Methods

Field assessments used a transect sampling system whereby parallel transects spaced 30-meters (m) apart were evaluated by four biologists for the presence of sensitive species known to occur in the habitats found in the study areas in San Benito and Fresno counties. In addition to sensitive species, potentially jurisdictional state or federal waters were also evaluated within the study areas. Within each Study Area, surveyors visually inspected an area extending 15-m either side of each transect line. A fifth survey crew member surveyed each area for potential cultural resources.

Longhorn Fairy Shrimp, Conservancy Fairy Shrimp, Vernal Pool Fairy Shrimp, and Vernal Pool Tadpole Shrimp

Surveys for these vernal pool brachiopods are typically required to be conducted by surveyors permitted by the USFWS, and must be completed during the full wet season survey and full dry season survey (USFWS 1996). Though the transmission line survey was conducted outside the general vernal pool brachiopod survey protocol, the overall purpose of this survey for LHFS, CFS, VPFS, and VPTS was to assess potential habitat within each study area. Potential vernal pool brachiopod habitat was assessed based on topography, local hydrology, and geology. Transects were spaced 30-m apart and surveyors walked on adjacent transect lines, surveying 15-m on either side of their line and stopping occasionally to scan for activity

Blunt-nosed leopard lizard

In order to survey for BNLL consistent with CDFW guidelines, a minimum of two surveyors are required to slowly walk on parallel transects spaced no further than 30m apart, occasionally stopping to scan for BNLL using binoculars over 17 days between adult and hatchling periods from April to September. All biologists conducting this survey were Level II BNLL surveyors with greater than 100 survey days completed. Though this transmission line survey was conducted outside of the time period set forth in the BNLL survey protocol (CDFG 2004) and, at some points, outside of the weather constraints, the overall goal of this survey for BNLL was to assess potential habitat within each study area. Potential BNLL habitat was assessed based on topography/terrain, vegetation, and presence of suitable burrows. Transects were spaced 30-m apart and surveyors walked on adjacent transects lines, surveying 15-m on either side of their line and stopping occasionally to scan for activity.

California Red-legged Frog

The CRF survey methodology involves surveying for possible breeding pools and other potential habitat. Surveyors are required to be familiar with the vocalizations of the CRF. Protocol surveys must be completed between January and the end of September and generally consists of eight

surveys, two day surveys and four night surveys during breeding season, and one day and one night survey during non-breeding season. The survey is conducted over a minimum period of six weeks (USFWS 2005). Although the transmission line survey was conducted outside the general CRF survey protocol, the overall purpose of this survey for CRF was to assess potential habitat within each study area. Potential CRF habitat was assessed based on local hydrology with particular attention paid to areas with potential to serve as breeding pools. Transects were spaced 30-m apart and surveyors walked on adjacent transect lines, surveying 15-m on either side of their line and stopping occasionally to scan for activity.

California Tiger Salamander

Surveying for CTS consists of inspecting transect lines for evidence of the small mammal burrows that could contain CTS and potential breeding pond habitat. Drift fence studies during the fall and winter are the primary method used to study CTS in upland habitats (USFWS 2003). Although the transmission line survey was conducted outside the general CTS survey protocol, the overall purpose of this survey for CTS was to assess potential habitat within each study area. Potential CTS habitat was assessed based on presence of small mammal burrows and local hydrology, with particular attention paid to areas with potential to serve as breeding pools. Surveying for CTS was conducted concurrently with other sensitive species discussed. Surveyors walked on parallel 30-m spaced transects inspecting the line and 15-m on both sides of the line, stopping occasionally to scan the area with binoculars. CTS are known to travel up to 1.2 miles from their breeding ponds to estivate; however, no survey for potential CTS breeding ponds was completed as part of this study.

Golden Eagle, White-tailed Kite, and California Condor

Surveying for the GOEA, WTKI, and CACO was conducted concurrently with the aforementioned sensitive species. Surveyors walked along 30-m spaced transects, occasionally stopping to scan the sky for the presence of the GOEA, WTKI, CACO, or other avian species. Evidence of nests or previous nesting was noted in study areas with cliffs, trees, or other substrate suitable for nests.

Giant Kangaroo Rat

Surveying methods for GKR consist of surveyors walking on parallel 30-m spaced transects inspecting each transect, including 15-m on either side, for evidence of GKR precincts. Burrow precincts were considered active based on presence of scat, tracks, tail-drags, pit caches, fresh excavations, and cropped vegetation around a series of suitably sized horizontal and vertical burrow openings. Precincts that did not appear to be occupied were also identified and mapped as inactive. Precincts were considered unoccupied when characteristic horizontal and vertical burrow openings and the surrounding area are devoid of all sign (fresh scat, tracks, fresh digging, and cropped vegetation).

San Joaquin Kit Fox

The San Joaquin kit fox survey methodology involves looking for dens and additional sign. The survey methodology used consisted of surveyors walking neighboring transects spaced 30-m apart to detect the dens that could be utilized by the species. Surveyors noted any known, natal, and potential kit fox dens, as well as latrines and tracks on loose earth observed within the work areas.

San Benito Evening-primrose , California Jewel-flower, and San Joaquin Woollythreads

Surveying for the San Benito Evening-primrose, California Jewel-flower, and San Joaquin Woollythreads was conducted concurrently with the aforementioned special status species. The survey methodology used consisted of surveyors walking neighboring parallel transects spaced 30-m apart, inspecting 15-m on either side of each transect for evidence of these plant species.

3.4. State and Federal Jurisdictional Waters Survey Methods

The following general methods for state and federal jurisdictional water surveys were used to inventory the study areas within the transmission line upgrade project area.

Clean Water Act

Potentially federal jurisdictional waters of the U.S., including wetlands, were assessed in the field for the transmission line and associated ground disturbance areas. Surveyors walked transects spaced 30-m apart, noting any topographic low with a defined bed and bank. During the on-site assessment, the sites were evaluated for drainage areas and potentially jurisdictional waters of the U.S. located within the proposed work areas and associated the larger study areas. The determination for jurisdictional waters of the U.S., including wetlands, was performed utilizing the Routine On-Site Determination Method as defined in the USACE Wetlands Delineation Manual (1987). This technique uses a three parameter approach, which requires positive evidence of:

- Hydrophytic vegetation
- Hydric soils
- Wetland hydrology

Areas exhibiting the above three wetland characteristics, as well as surface waters, are considered jurisdictional. Drainage features were also evaluated for the presence of continuous bed and bank and evidence of an ordinary high water mark (OHWM), in accordance with USACE Regulatory Guidance Letter No. 05-05, Ordinary High Water Mark Identification, and the Environmental Protection Agency (EPA) Draft Guidance on Identifying Waters Protected by the Clean Water Act (2011). Drainages with continuous evidence of bed and bank and an OHWM are typically considered jurisdictional.

The Project Area, including the transmission line and associated ground disturbance areas, is located within the Arid West Region. Soil samples were taken and Wetland Determination Data Forms (Arid West Region) were completed at any point with defined bed and bank and hydrophytic vegetation or an OHWM.

Other State Regulated Waters

Additional state regulated drainages were also assessed in the field. Notification is required for any alteration of a river, stream, or lake that flows at least intermittently through a bed or channel. Within each study area, for any drainage feature observed a Lake and Streambed Alteration Agreement (LSAA) Notification Drainage Survey Form was completed, including the

presence of water, a defined bank, flow characteristics (ephemeral, intermittent, river, etc.), the presence of riparian habitat, and any additional notes. All forms were completed in accordance with the State of California Department of Fish and Game Code (Section 1602) requirements for notification. The Notification will be submitted only if alteration of a drainage feature is necessary.

4.0 Study Area Surveys Results

The survey was conducted from September 15 through September 18, 2014. Weather conditions were conducive to the survey and generally ranged from 75-100°F with winds of 5-15 mph. Based on field assessments, the majority of the planned sites for ground disturbance are areas in which there will be little to no disturbance of sensitive species, jurisdictional waters, or cultural resources. Photographs for each work area are presented in Appendix B.

4.1. Survey Results Study Area 1

Study Area 1, is a 2,000 linear foot disturbance planned along the shoulder of Little Panoche Road, consisting of the AT&T Cable Site that will be trenched for the installation of copper (Figure 3 and Table 1). Study Area 1 is located adjacent to the Project Area to the south within the Valley Floor Conservation Lands and is intersected by Little Panoche Road running north-south through the area (Appendix B and Figure 3). Trenching is planned along the Little Panoche Road shoulder; however, the habitat of the greater Study Area 1 (including the buffer) is considered disturbed (e.g. grazing) and is dominated by non-native and native species such as Russian thistle (*Salsola tragus*), red brome, procumbent pigweed (*Amaranthus blitoides*), bindweed (*Convolvulus arvensis*), Lamb's quarters (*Chenopodium album*), doveweed (*Croton setigerus*), Jimson weed (*Datura wrightii*), and redstem filaree. For a complete vegetation list please see Appendix B of this report.

No sensitive resources were observed within the disturbance area planned for trenching and communications wire/fiber installation, although evidence of use by sensitive species was observed within other portions of the associated buffer. An active GKR precinct was observed near the western edge of Study Area 1 and a fresh badger dig was observed near the southern edge of the study area, though no badger scat was noted near the dig (Figure 3). No federal or state regulated waters were observed in Study Area 1. As depicted in Figure 3, Study Area 1 overlaps with an existing proposed Project BNLL buffer zone. Work on the AT&T Cable Site will be conducted strictly along the shoulder of Little Panoche Road to avoid burrows potentially inhabited by BNLL or other sensitive species known to occur in the project area.

Despite no sensitive species being observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.2. Survey Results Study Area 2

Study Area 2 is an approximate 24 acre area within the Valley Floor Conservation Lands that includes Landing Zone 1 (Figure 4 and Table 1). Study Area 2 will be used for staging materials,

picking up and transporting electrical personnel and equipment, and refueling helicopters. The habitat of Study Area 2 is considered disturbed due to heavy livestock grazing and is dominated by non-native grasses with some spares saltbush scrub habitat present (Appendix B). Some of the primary vegetative species observed in this area include soft chess (*Bromus hordeaceus*), Allscale saltbush (*Atriplex polycarpa*), vinegar weed (*Trichostema lanceolatum*), tumbling orach (*Atriplex rosea*), Russian thistle, prostrate spurge (*Chamaesyce ocellata ssp. ocellata*), common fiddleneck (*Amsinckia intermedia*), and shiny peppergrass (*Lepidium nitidum*). A complete list of observed vegetative species is provided in Appendix B.

Sensitive resources were minimal within Study Area 2 (Figure 4). No sensitive resources were observed within the 0.34 acre disturbance area, and only one recent badger dig was observed on the northern edge of the buffered study area. No federal or state regulated waters were observed in Study Area 2.

Based on discussions with PG&E since the completion of this survey, Landing Zone 1 located within Study Area 2 will be relocated due to its overlap with an existing proposed Project BNLL buffer zone (Figure 4). The new location of Landing Zone 1 will be determined later by PG&E.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.3. Survey Results Study Area 3

Study Area 3 (including the associated buffer) is approximately 40 acres and is located partially within the Valley Floor Conservation Lands and includes Wire Pull Sites 1 and 2 (Figure 4 and Table 1). Study Area 3 will be used for two temporary wire pull/splice sites, one staged on either side of the existing transmission tower. The habitat of Study Area 3 is similar to Study Area 2, as the areas are within 0.4 miles of each other. The study area is characterized by livestock grazed, non-native grasses with some sparse saltbush scrub habitat in the outer limits of the study area (Appendix B). Some of the most common species observed include red brome, redstem filaree, vinegar weed, angle-stem wild buckwheat (*Eriogonum angulosum*), tumbling orach, prostrate spurge, shiny peppergrass and Allscale saltbush. A complete list of vegetative species observed is located in Appendix B.

Study Area 3 had evidence of BUOW, GKR, SJKF, and SJAS (Figure 4). BUOW white wash was observed at several fence posts and pellets were noted at one post in the eastern portion of the study area. Inactive and active GKR precincts were observed throughout the southern portion of the study area. A SJKF latrine with old scat was observed in the eastern portion of the work area, and a SJAS was observed in the northern portion of the work area. Though evidence of several species was noted at Study Area 3, none of the observations were within the planned 75-ft by 75-ft area of temporary disturbance (Figure 4). Additionally, a small drainage was noted near the southeastern boundary of Study Area 3 which is potentially Other State Waters and may require permitting if planned locations for disturbance areas are modified.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.4. Survey Results Study Area 4

Study Area 4 is located in the hills 5.5 miles east of the Project Footprint within the Bureau of Land Management (BLM) Lands and consists of approximate 56 acres which includes the associated buffer (Figure 5). Study Area 4 includes Wire Pull Sites 3, 4, and 5 (Table 1), though final design of Wire Pull sites will only utilize two of the three locations. After the initial survey of Study Area 4 found the area to have highly variable topography and potential rare plant species, the survey was extended westward to determine if working around an alternative existing transmission tower would serve as a viable option for a wire pull/splice site. Study Area 4 will be used for two temporary wire pull/splice sites, one staged on either side of an existing transmission tower. Study Area 4 is located in rolling hills, dominated by non-native grasses and a natural scrub community (Appendix B). Some of the most common vegetative species observed in this area include Mediterranean grass (*Schismus arabicus*), vinegar weed, red brome, interior goldenbush (*Ericameria linearifolia*), California ephedra (*Ephedra californicus*), California matchweed (*Guitierrezia californica*), shiny peppergrass, and common fiddleneck. A complete list of vegetation observed is found in Appendix B.

Sensitive resource observations at Study Area 4 included inactive GKR precincts, a badger burrow, an SJKF latrine, and potential rare plant occurrences (Figure 5). All observations were made within the study area buffer but outside the 0.13 acre disturbance areas planned for potential wire pull sites. The sensitive species observations were generally located along the southern portion of the study area (Figure 5). GKR precincts observed were considered inactive due to the presence of bleached scat and hardened backfilled vertical burrows and lack of fresh sign. The badger burrow noted in this study area was in good condition but no recent sign was observed in the vicinity of the burrow. Sensitive vegetative species were particularly difficult to identify to the species level during the survey, due to the time of year and lack of flowers present; however, the potential rare plant observed is from the genus *Navarretia*, which includes 56 different species, 22 of which are considered rare in the State of California. All observations made at Study Area 4 were within the southern portion of the study area buffer, outside of the planned 75-ft by 75-ft ground disturbance areas. While sensitive resources do not inhibit this location as a wire pull site, the topography may serve as a limiting factor. No federal or state regulated waters were observed in Study Area 4.

While sensitive species were not observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.5. Survey Results Study Area 5

Study Area 5 is an approximate 39-acre portion of land (including the buffer) located within BLM lands approximately 10 miles east of the Project Footprint (Figure 6) which includes Wire Pull Sites 6 and 7 (Table 1). Study Area 5 will be used for two temporary wire pull/splice sites, one staged on

either side of the existing transmission tower. Study Area 5 is located within the Allscale scrub alliance and appears to be occasionally used recreationally by all-terrain vehicles (ATV) (Appendix B). Some of the primary vegetative species observed in Study Area 5 include Allscale saltbush, tumbling orach, tocalote (*Centaurea melitensis*), common fiddleneck, prostrate spurge, angle-stem buckwheat, California buckwheat (*Eriogonum fasciculatum*), and redstem filaree. A complete list of observed vegetative species is found in Appendix B.

No evidence of sensitive resources were observed within the 0.13 acre planned disturbance area of Study Area 5, though evidence of use by the SJKF was observed in larger study area (Figure 6). A known SJKF den was observed in the southwestern portion of the study area where bones and prey remains were noted, in addition to somewhat fresh scat observed in the northeastern portion of the study area. Additionally, three drainages were noted along the northern boundary of Study Area 5 which are potential Other State Waters and may require permitting if planned locations for disturbance areas are modified.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.6. Survey Results Study Area 6

Study Area 6 is comprised of Wire Pull Sites 8 and 9 and ADSS Wood Pole Site 1 (Figure _ and Table 1). Study Area 6 is an approximately 30 acre area (including the 500-ft buffer) located approximately 12 miles east of the Project Area (Figure 7). The separation of Study Area 6 from Study Area 7 was a decision made in the field based on access and overall habitat differentiation between the two study areas. Study Area 6 is located within a more diverse habitat that includes steep slopes with loose sediment, Allscale scrub alliance, and a large wash with high ATV use (Appendix B). Some of the primary vegetative species observed at Study Area 6 include alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), California matchweed, Russian thistle, wirelettuce (*Stephanomeria pauciflora*), allscale saltbush, saltcedar (*Tamarix ramosissima*), alkali heliotrope (*Heliotropium curassavicum* var. *osculatum*), and California buckwheat. A complete list of vegetative species observed is located in Appendix B.

Sensitive biological resources were not noted within Study Area 6 during the surveys; however, the northwestern portion of the buffered study area extends into Panoche Creek, a federally jurisdictional water feature (Figure 7). The creek was dry at the time of the site visit, but exhibited evidence of wetland hydrology and hydrophytic vegetation. Wetland hydrology primary indicators observed include drift deposits, surface soil cracks, and salt crust. Hydrophytic vegetation included saltgrass (*Distichlis spicata*), annual beard grass (*Polypogon monspeliensis*), and saltcedar. Wetland Determination Data Forms for this area are found in Appendix C.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.7. Survey Results Study Area 7

Study Area 7 consists of ADSS Wood Pole Sites 2-9, Guard Structures 1-3, and Wire Pull Sites 10 and 11 (Figure 7 and Table 1). Study Area 7, including the buffer, extends southeast-northwest for approximately 1 mile, comprising approximately 116 acres located 1.25 miles west of Interstate 5 (Figure 7). Study Area 7 will be used for several tasks necessary for the transmission line upgrade. Uses within this study area include: two temporary wire pull/splice sites, one staged on either side of the existing transmission tower; three guard structure sites where wood poles will be augered with net strung between them to catch any falling tools or other materials that could fall into the intersected public roadway; and eight ADSS wood pole sites where line trucks will auger holes eight feet deep and two feet wide for the wood poles. This study area is located almost entirely within a mixture of well-maintained pomegranate orchards and vineyards that had no herbaceous layer (Appendix B). Surveying methodology varied due to the high farming activity occurring throughout the week of surveys. Rather than survey 30-m transects within the vineyard and orchard that comprise Study Area 7, surveyors drove the primary roads of the vineyard and orchard at approximately 2 mph and inspected for burrow complexes and plant species between crop rows. When potential evidence of activity was observed surveyors walked the row to inspect the observation. No sensitive resources were noted within this study area (Figure 7). Panoche Creek, a federally jurisdictional water feature, intersects the northwestern boundary of the study area. The presence of Panoche Creek along the study area boundary may limit the movement of these various work areas.

Despite no sensitive species being observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.8. Survey Results Work Area 8

Study Area 8 is an approximate 24 acre area approximately one mile west of Interstate 5 (Figure 8) that includes Landing Zone 2 (Table 1). Study Area 8 will be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters. Study Area 8 is located directly adjacent to Study Area 7 to the north. The southern portion of the study area is located within disturbed land developed with vineyards, while the northern portion is situated partially within the federally jurisdictional Panoche Creek and partially within a disturbed cleared work area used by the farmers to store equipment (Appendix B). Vegetative species at this work area were observed within Panoche Creek, due to the complete clearing of the northeastern portion of the area and the strict maintenance of the vineyards in the south. Some of the species observed within Panoche Creek include tree tobacco (*Nicotiana glauca*), saltcedar, big saltbush (*Atriplex lentiformis*), common sow thistle (*Sonchus oleraceus*), prostrate spurge, Jimson weed, procumbent pigweed, and alkali goldenbush. A full list of vegetation observed is located in Appendix B.

No evidence of sensitive species was observed within the 0.34 acre planned disturbance areas of Study Area 8, though evidence of use by the American badger was observed in the larger study area (Figure 8). American badger burrows were observed in the west-northwestern portion of

Study Area 8 within Panoche Creek. The presence of the federally jurisdictional Panoche Creek directly west/northwest of the planned disturbance area limits movement of this landing zone.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.9. Survey Results Study Area 9

Study Area 9 is an approximate 26-acre area located approximately 0.5 miles west of Interstate 5 (Figure 8) that includes Guard Structures 4 and 5 (Table 1). Study Area 9 will be used for guard structure sites where wood poles will be augered with net strung between them to catch any falling tools or other materials. Study Area 9 is located entirely within an almond orchard, with West Panoche Road intersecting the northern portion of the study area running roughly southwest-northeast (Appendix B). Some of the vegetative species observed at this study area include procumbent pigweed, prostrate spurge, redstem filaree, cheeseweed (*Malva parviflora*), bindweed, common fiddleneck, Lamb's quarter, and red brome.

No sensitive resources were observed within the planned 0.17 acre areas of disturbance for guard structures. The only noteworthy observation made in Study Area 9 is the sighting of a great horned owl (*Bubo virginianus*) which was flushed during the survey of the southeastern portion of the study area (Figure 8). No nest was observed in the area. No federal or state regulated waters were observed in Study Area 9.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.10. Survey Results Study Area 10

Study Area 10 is comprised of Guard Structures 6 and 7 (Table 1), an area comprised of approximately 29 acres that spans Interstate 5 (Figure 9). Study Area 10 will be used for guard structure sites where wood poles will be augered with net strung between them to catch any falling tools or other materials. Study Area 10 is within a disturbed habitat (e.g. plowing), bisected by I-5 running roughly north-south and intersected by West Panoche Road running roughly southwest-northeast (Appendix B). Due to the location of this study area relative to these two roads, Study Area 10 was essentially split into quarters for the survey (SE, NE, SW, NW). Some of the primary ruderal vegetative species observed include red gum (*Eucalyptus camaldulensis*), tree tobacco, puncture vine (*Tribulus terrestris*), procumbent pigweed, alkali goldenbush, Russian thistle, common fiddleneck, redstem filaree, bindweed, and saltgrass. A complete list of vegetation observed is located in Appendix B.

No sensitive resources were observed within the 0.17 acre areas of planned disturbance. The only sensitive species noted within Study Area 10 were two dead juvenile Swainson's hawks, a state-threatened species, that were observed adjacent to the highway in the northwest quarter of the study area (Figure 9). The hawks are assumed to have been killed by traffic along I-5 based on the

proximity of both to the highway and apparent results of impact, which included the detachment of one of the hawk's wings from the remainder of the carcass. The northwest quarter of Study Area 10 has substantial cover of red gum, particularly when compared to the rest of Study Area 10, but no nests were observed in the study area. No federal or state regulated waters were observed in Study Area 10.

In addition to observations of Swainson's Hawks in the study area, habitat for several other potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.11. Survey Results Study Area 11

Study Area 11 is an approximate 22 acre area located approximately 1 mile east of Interstate 5 (Figure 10) that includes Guard Structure 8 (Table 1). Study Area 11 will be used for guard structure sites where wood poles will be augered with net strung between them to catch any falling tools or other materials. Study Area 11 is intersected by West Panoche Road running roughly southwest-northeast and by Brannan Avenue running north-south through the center of the study area. The southern portion of Study Area 11 is situated within a vineyard, while the northern portion is split between an almond orchard in the northwest and a cleared dirt field used for recreational purposes in the northeast (Appendix B). Vegetative species observed at Study Area 11 include procumbent pigweed, Lamb's quarter, prostrate spurge, redstem filaree, alkali weed, Jimson weed, Russian thistle, and unicorn plant (*Proboscideae lutea*). No sensitive resources including protected species and federal and state waters were observed within Study Area 11. No federal or state regulated waters were observed in Study Area 11.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.12. Survey Results Work Area 12

Study Area 12 is approximately 49 acres located approximately two miles east of Interstate 5 (Figure 11) and includes Substation OPGW Underground Work Area and Wire Pull Site 12 (Table 1). Study Area 12, including the buffer, stretches roughly east-west for approximately 0.4 miles and is intersected by West Panoche Road running roughly southwest-northeast through the central portion of the study area. This study area is considered disturbed due to the southern half of this study area being comprised of vineyards in the west and the Panoche Substation in the east, while the northern half of this study area is situated within an almond orchard (Appendix B). Additionally, in the central portion of the northern half of the study area directly adjacent to West Panoche Road, are three historic households and a newer farming structure (see Appendix D for cultural resources details). Primary vegetative species observed at Study Area 12 include prostrate spurge, prickly lettuce (*Lactuca serriola*), redstem filaree, bindweed, nightshade (*Solanum xanti*), doveweed, common fiddleneck, and cheeseweed. A full list of vegetative species observed is found in Appendix B.

No sensitive resources were observed within the 2.19 acre area of planned disturbance within Study Area 12. Potential SJKF tracks were noted within the northeastern portion of the work area buffer. Additionally, a great horned owl was flushed from the almond orchard while conducting the survey on Study Area 12 (Figure 11). No nest was observed. No federal or state regulated waters were observed in Study Area 12.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

4.13. Survey Results Study Area 13

Study Area 13 is an approximately 24 acre area located directly adjacent to the Panoche Substation approximately 2.5 miles east of Interstate 5 (Figure 11) that includes Landing Zone 3 (Table 1). Study Area 13 will be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters. Study Area 13 is within a disturbed habitat with the northern portion intersected by West Panoche Road, the southwest within the Panoche Substation, and the east within a vineyard (Appendix B). Some of the primary vegetative species observed in Study Area 13 include California brome (*Bromus carinatus*), Russian thistle, procumbent pigweed, bindweed, tumbling orach, prostrate spurge, prickly lettuce, redstem filaree, vinegar weed, and cheeseweed. A full list of vegetation observed is located in Appendix B. No sensitive resources including protected species and federal and state waters were observed within Study Area 13.

Although no sensitive species were observed during the survey, habitat for several potential species was noted within the study area. Special status species with habitat within the study area can be found in Appendix A.

5.0 Summary and Recommendations

The most biologically diverse of the areas surveyed is Study Area 3 (Wire Pull Sites 1 and 2). Within Study Area 3, evidence of BUOW, GKR, SJAS, and SJKF was observed; however, none of these observations were made within the planned areas of disturbance for the wire pull sites. Access issues may restrict use of Study Area 5 (Wire Pull Sites 6 and 7), as the only access road is controlled by the BLM. Coordination with BLM may enable use of the two-track road that leads directly to Study Area 5. Variable topography may restrict use of Study Area 4 (Wire Pull Sites 3, 4, and 5).

Though observations for sensitive resources were relatively low at each study area surveyed, the majority of the study areas (excluding those within vineyards and orchards) contained substantial burrows for other rodents and small mammals, the primary source of food for the SJKF. Additionally, minimal amounts of old SJKF scat were observed at several study areas, specifically those to the west of Interstate 5. Even though no individual BNLL were observed, due to the terrain, evidence of sufficient small mammal burrows, the studies being performed outside the protocol season window, and the overall habitat within certain study areas, BNLL could potentially be found within work areas. With the noted evidence of the small mammal

burrows the study areas could contain other special status small mammal species (e.g. Tulare grasshopper mouse). The study area was not trapped for these burrowing mammal species, therefore, without additional surveys, it has to be assumed that these special status species could utilize the small mammal burrows within the study areas.

Furthermore, with the evidence of the small mammal burrows the study areas could contain CTS. The study area was limited to a 500 foot buffer in which no vernal pools/ponds were located. However, with CTS known to travel up to 1.2 miles from their breeding ponds to estivate, no survey for potential CTS breeding ponds was completed as part of this study. Therefore, without a larger radius breeding pond survey, it has to be assumed that CTS could estivate within the appropriate sized small mammal burrows within the study areas.

No evidence of nesting special status raptor species were located within the study areas with exception of Study Area 3 as noted above. However, during the worked being performed during the upgrade that is within a quarter mile of an active nest during breeding season could cause a disturbance.

There are several special-status plants known to occur in the vicinity of the study areas. However, due to the timing of the surveys within the study areas certain special status species may not be evident. The potential presence of those special status species within the study areas due to habitat is noted in Appendix A. Use of any of the planned disturbance areas should take proper steps to ensure no sensitive species are impacted by the planned activities.

The potential habitats for some special status species were observed within certain study areas during the field assessment as noted in Appendix A. This does not provide evidence of presence or absence of the species but does give an indication of the potential for the species that could occur or be observed within the study areas during the appropriate seasonal survey window. This data will provide crucial information when developing the avoidance and minimization measures for the construction of the telecommunication upgrades.

Potentially federal and state jurisdictional waters were assessed in the field for the study areas and associated ground disturbance areas. The only study areas that were found to have jurisdictional waters issues was Study Area 6 and Study Area 8, both of which have disturbance area buffers extending into Panoche Creek. However, these potential jurisdictional areas are not located within the smaller associated disturbance area planned within the noted study area.

The results from the Panoche Valley Solar Transmission Line Natural Resources Assessment indicate the sites chosen as temporary work areas for transmission line upgrades are situated such that temporary disturbances will have potentially minimal or no impact on special status species and regulated natural resources described in this report with appropriate avoidance and minimization measures. Additionally, surveys of study areas, which included the planned disturbance areas and a 500-ft buffer, revealed the flexibility of moving the disturbance areas if necessary at the time of upgrade construction field work.

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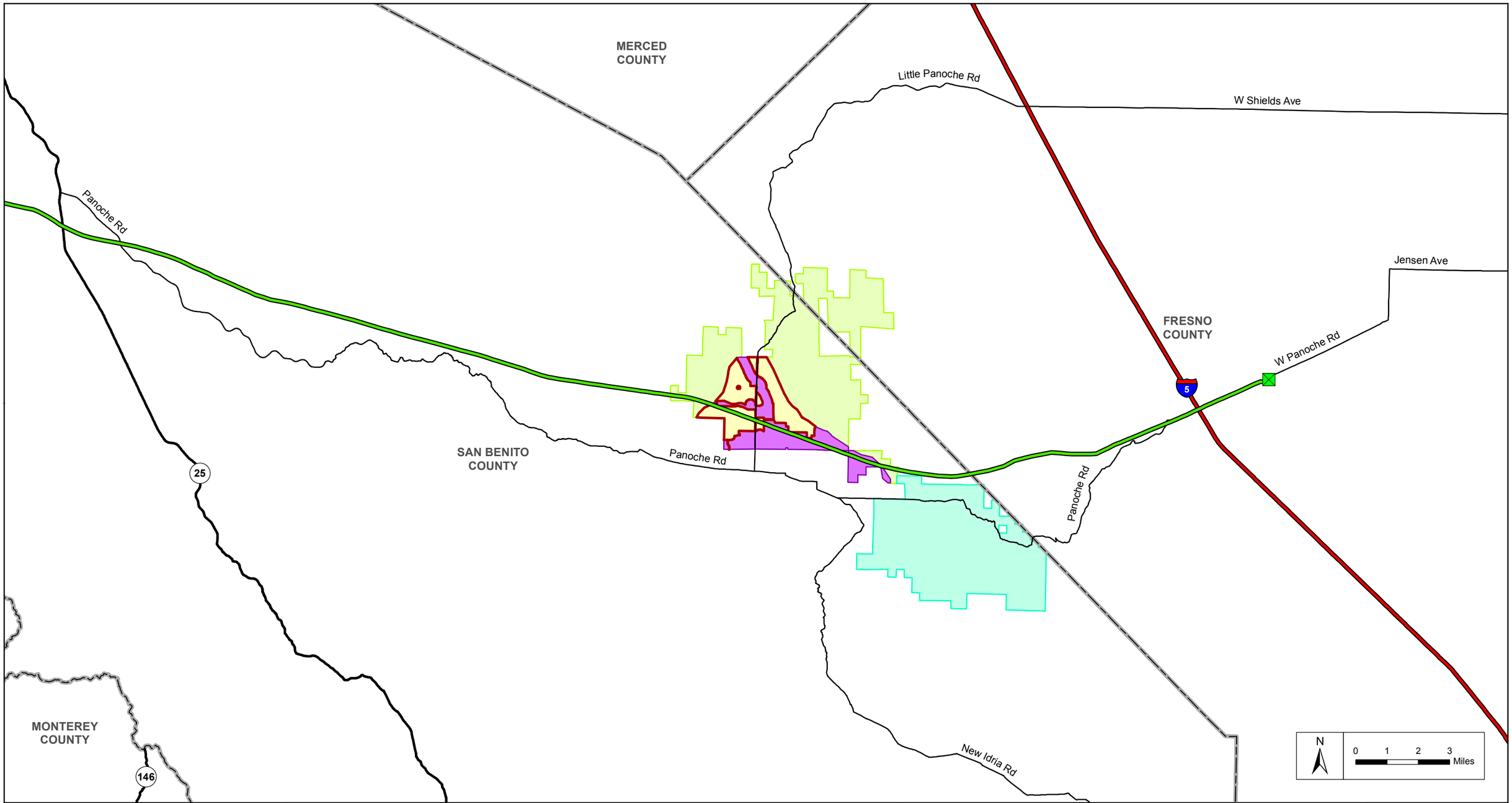
FIGURES



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Legend

- Project Footprint
- Silver Creek Ranch Conservation Lands
- Valadeao Ranch Conservation Lands
- Valley Floor Conservation Lands
- County Boundary
- Panoche Substation
- Electric Transmission

Panoche Valley Solar Project

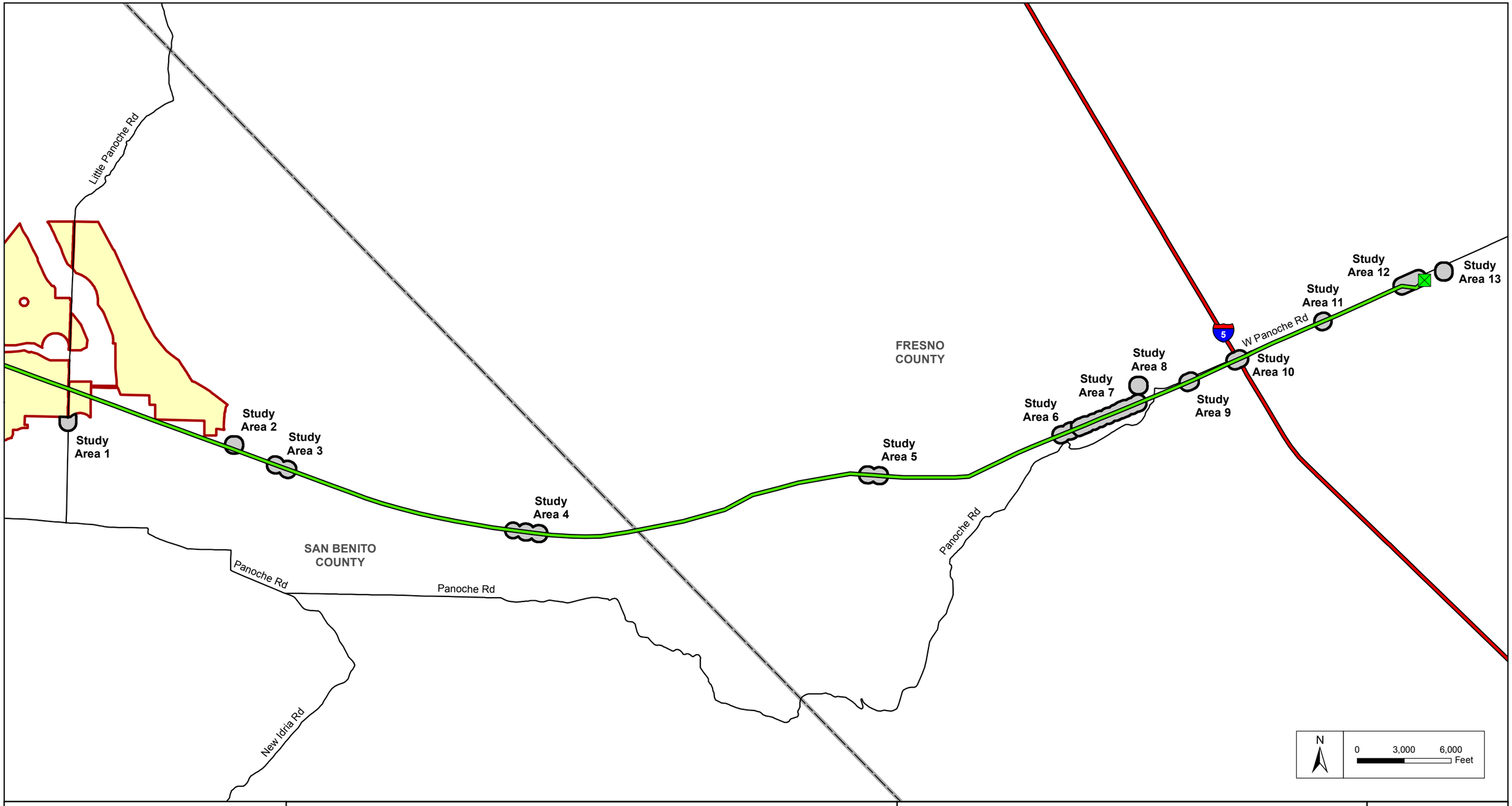
Telecom Upgrades

Regional Overview

FIGURE

1

JH 2014-09-29



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Legend

- Project Footprint
- County Boundary
- Panoche Substation
- Electric Transmission
- Study Area

Panoche Valley Solar Project

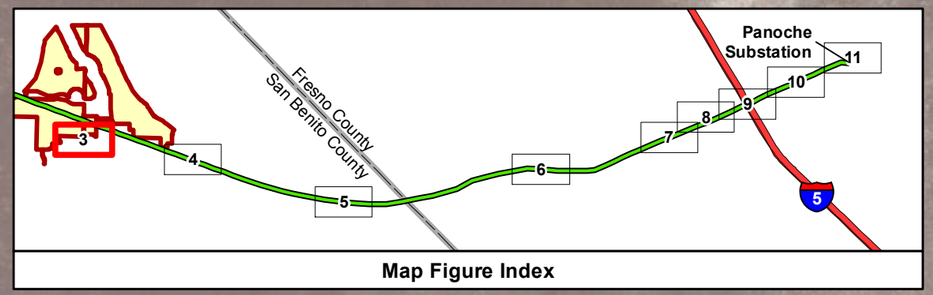
Telecom Upgrades

Project Overview

FIGURE

2

JH 2014-09-29



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Legend

- Survey Observation
- Study Area
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- Existing Transmission Structure
- Existing Electric Transmission
- AT&T Cable Below Ground Option
- Blunt-Nose Leopard Lizard Buffer Area

Panoche Valley Solar Project

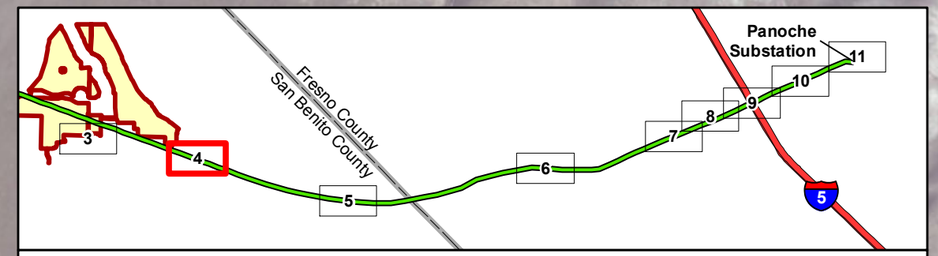
Telecom Upgrades

Study Area 1

FIGURE

3

JH 10/15/2014



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Badger dig

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San Joaquin antelope squirrel

Study Area 3

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GKR precinct

BUOW pellet, white wash

GKR precinct

SJKF latrine

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Old GKR precinct

Panoche Creek

N

0 200 400 Feet

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Legend

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- Landing Zone Work Area
- Wire Pull Site Work Area
- Blunt-Nose Leopard Lizard Buffer Area

Panoche Valley Solar Project

Telecom Upgrades

Study Areas 2 and 3

FIGURE

4

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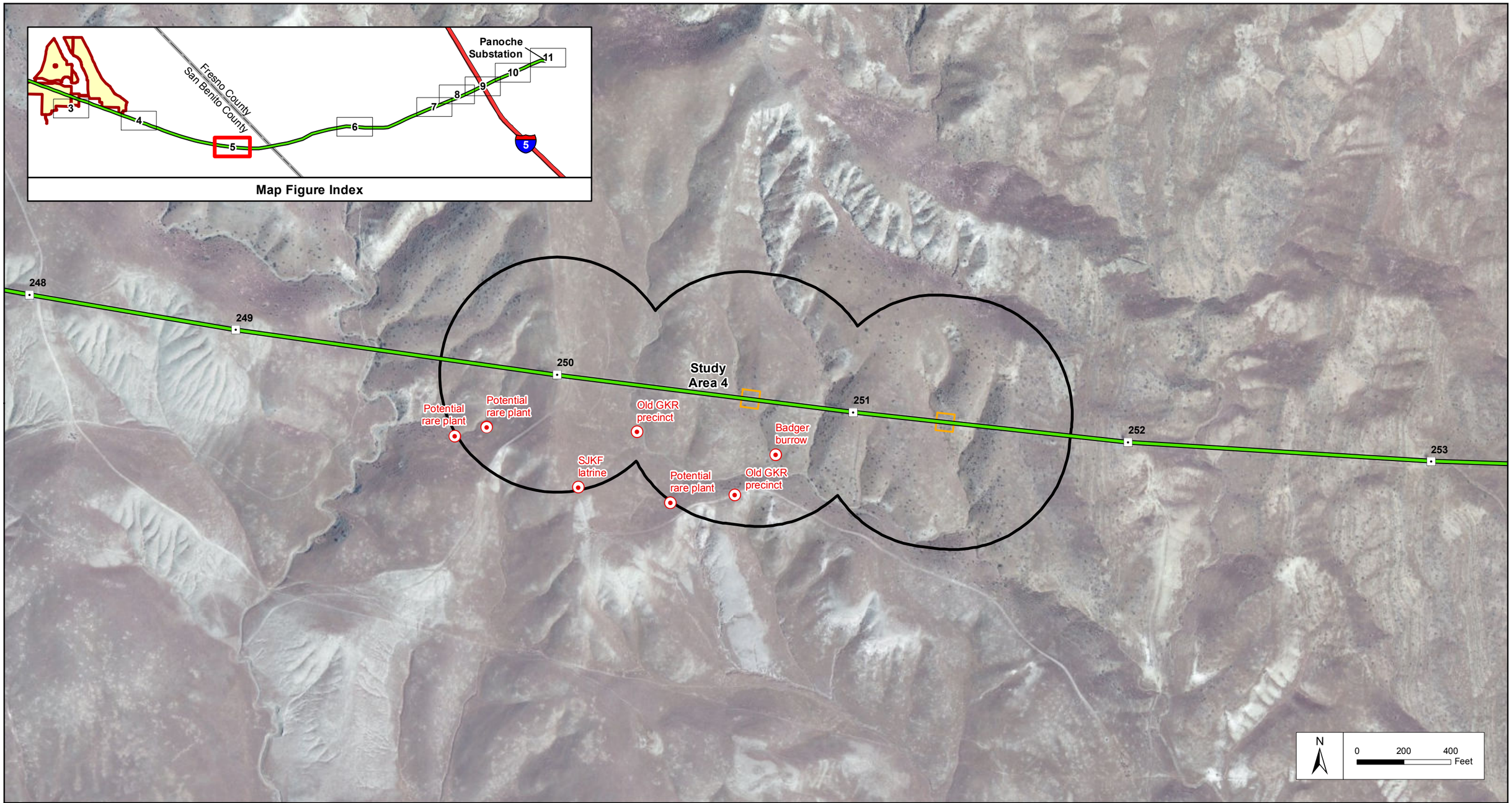

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Legend

- Survey Observation
- Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Wire Pull Site Work Area

Panoche Valley Solar Project

Telecom Upgrades

Study Area 4

FIGURE

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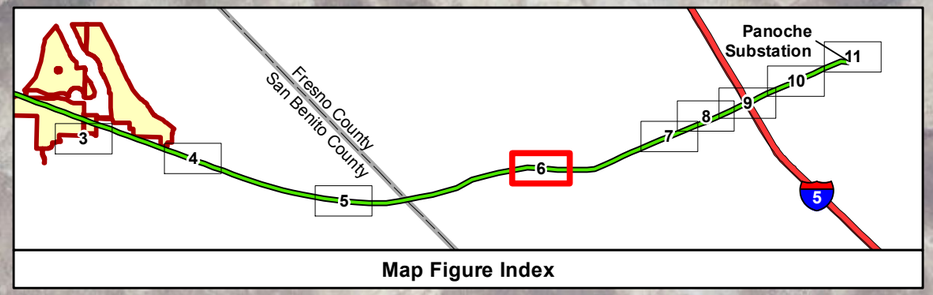

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Legend

- Survey Observation
- Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Drainage
- Wire Pull Site Work Area

Panoche Valley Solar Project

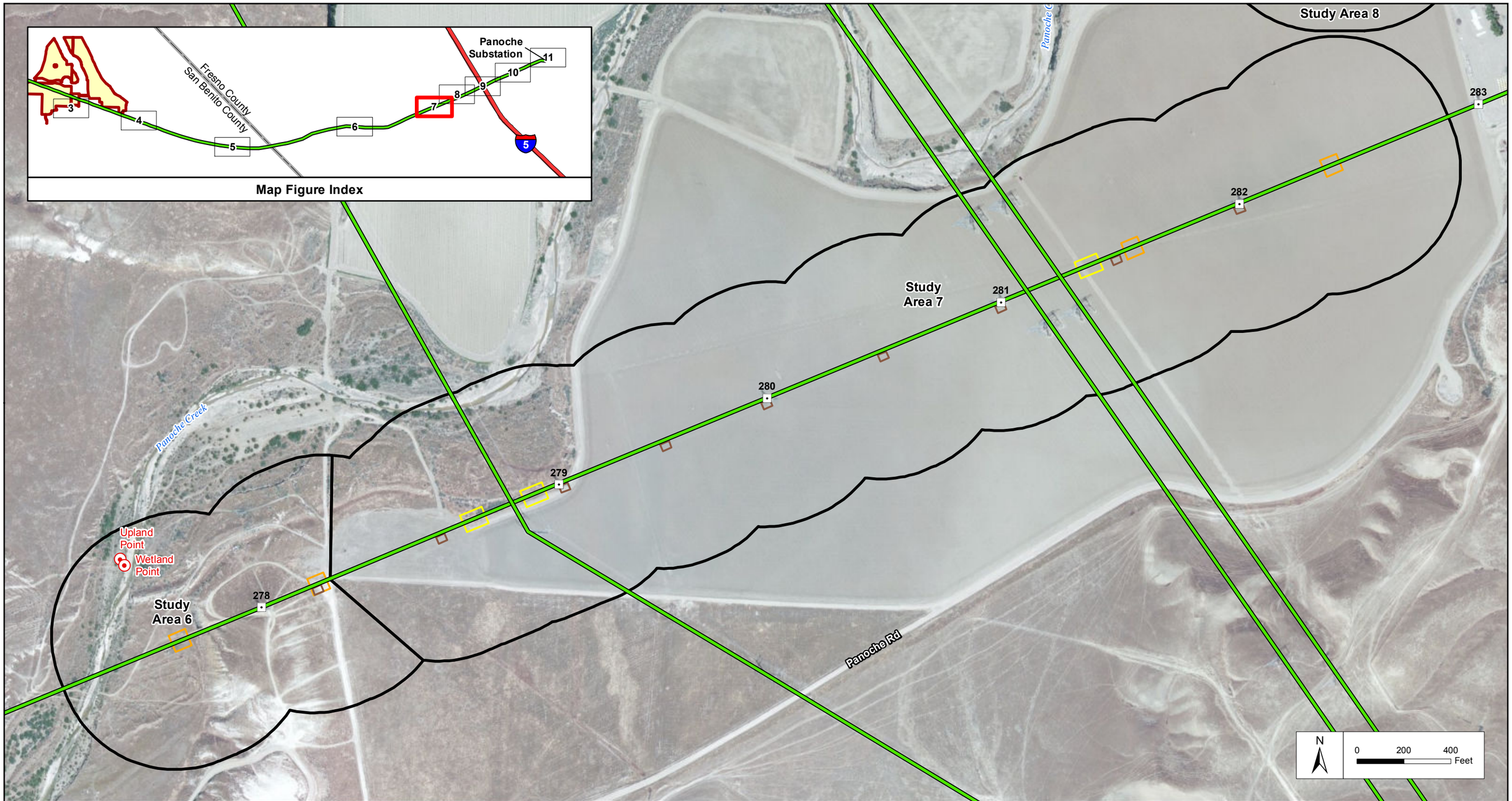
Telecom Upgrades

Study Area 5

FIGURE

6

JH 10/15/2014



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Legend

- Survey Observation
- Study Area
- Existing Transmission Structure
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- ADSS Pole Work Area
- Guard Structure Work Area
- Wire Pull Site Work Area

Panoche Valley Solar Project

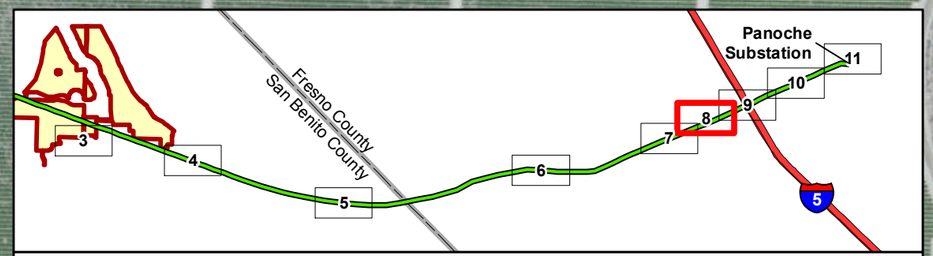
Telecom Upgrades

Study Areas 6 and 7

FIGURE

7

JH 10/15/2014



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Badger burrow
Study Area 8
Badger burrow
Panoche Creek
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W Panoche Rd
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Study Area 9
Great Horned Owl
N
0 200 400 Feet

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Legend

- Survey Observation
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- Existing Electric Transmission
- ADSS Pole Work Area
- Guard Structure Work Area
- Landing Zone Work Area
- Wire Pull Site Work Area

Panoche Valley Solar Project

Telecom Upgrades

Study Areas 8 and 9

FIGURE

8

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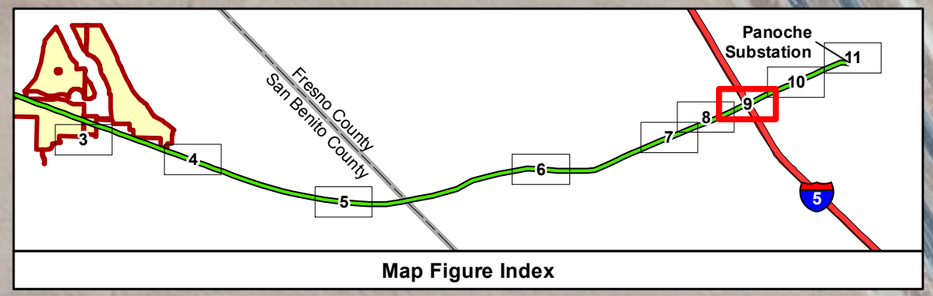

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Legend

- Survey Observation
- Study Area
- Existing Transmission Structure
- Existing Electric Transmission
- Guard Structure Work Area

Panoche Valley Solar Project

Telecom Upgrades

Study Area 10

FIGURE

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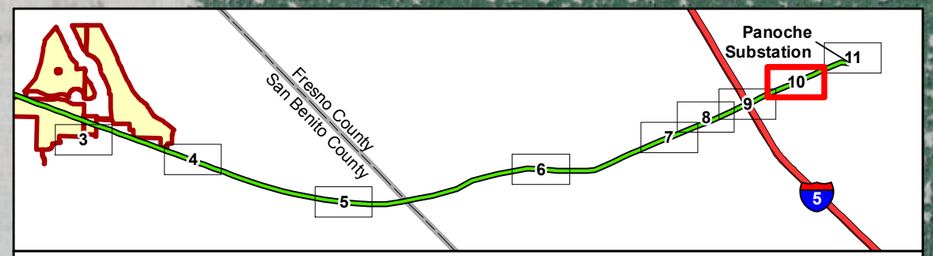

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W Panoche Rd
S Brannan Ave
Study
Area 11

N
0 200 400
Feet

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Legend

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Panoche Valley Solar Project

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Study Area 11

FIGURE
10

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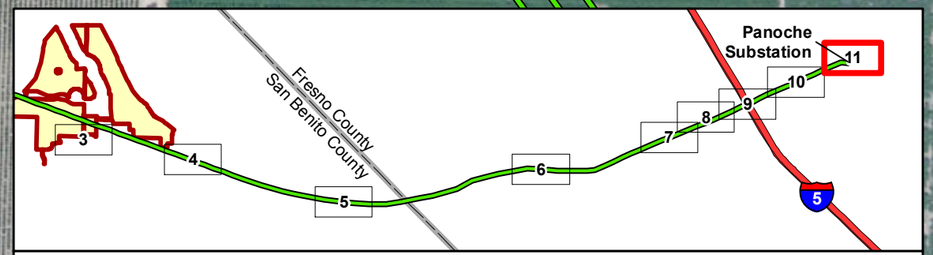

Map Figure Index

Potential SJKF tracks

W Panoche Rd

Great Horned Owl

Study Area 12

Study Area 13

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N

0 200 400 Feet

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Legend

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- Landing Zone Work Area
- Panoche Substation OPGW UG Work Area
- Wire Pull Site Work Area

Panoche Valley Solar Project

Telecom Upgrades

Study Areas 12 and 13

FIGURE

11

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APPENDICES

Appendix A

Special Status Species with Potential to Occur

Special-Status Wildlife with Potential to Occur

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Invertebrates					
Branchinecta longiantenna	longhorn Fairy Shrimp	FE	Not Likely To Occur	Clear to turbid grassland pools within San Joaquin Vernal Pool Region	NA
Branchinecta conservation	conservancy fairy shrimp	FE	Not Likely To Occur	Turbid water in vernal pools	NA
Branchinecta lynchi	vernal Pool Fairy Shrimp	FT	Not Likely to Occur	Vernal pools, vernal swales, alkaline pools, and road-side ditches	NA
Lepidurus packardi	vernal pool tadpole shrimp	FE	Not Likely To Occur	Clear, well vegetated vernal pools to turbid, alkali scald pools; generally in water deeper than 12 cm	NA
Reptiles					
Actinemys marmorata pallida	Southwestern pond turtle	CSC	Low	Slow-moving waterways with upland habitat accessible for basking.	6-8
Anniella pulchra pulchra	silvery legless lizard	CSC	Moderate	Sandy or loose loamy soils with adequate soil moisture	1-8
Gambelia sila	blunt-nosed leopard lizard	FE, SE, SFP	Present (Observed in Valley Floor Conservation Lands 2013)	Arid grasslands, alkali flats, low elevation foothills, large washes; burrows of other species typically used for cover and sparse vegetation preferred	1-7
Masticophis flagellum ruddocki	San Joaquin coachwhip	CSC	High	Desert, prairie, scrublands, juniper-grassland, and other habitats in dry, open terrain	1-13
Phrynosoma blainvillii	coast horned lizard	CSC	High	Open areas with sandy soil and low vegetation, lowlands along sandy washes with scattered shrubs	1-7
Rana draytonii	California red-legged frog	FT	Not Likely To Occur	Standing deep ponds, pools, and streams; tall vegetation	NA

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Thamnophis hammondii	two-striped garter snake	CSC	Not Likely To Occur	In or near permanent fresh water, along streams with rocky beds bordered by riparian vegetation	NA
Amphibians					
Ambystoma californiense	California tiger salamander	FT, STC	High	Burrows of small mammals within grassland or oak savannah with wetland breeding ponds up to one mile away	1-6
Spea hammondii	western spadefoot toad	CSC	Moderate	Open areas with sandy or gravelly soils within woodlands, grasslands, sandy washes, lowlands, and other habitats.	1-8
Birds					
Agelaius tricolor	tricolored blackbird	CSC	High	Nest in marshy areas and settle in areas with access to open water; forage in valley and foothill grassland and agricultural fields	4-7
Ammodramus savannarum	grasshopper sparrow	CSC	High	Open grasslands and prairies with patches of bare ground.	1-7
Aquila chrysaetos	golden eagle	SFP	Present	Partially or completely open country around mountains or hills within habitats ranging from desert to arctic	1-7
Asio flammeus	short-eared owl	CSC	Low (nesting)	Open country including tundra, prairie, grassland, sand dunes and other habitats; sufficient vegetation required for nesting	1-7
Asio otus	long-eared owl	CSC	Moderate	Combination of grassland for foraging and dense tall shrubs for nesting and roosting.	1-7, 9-13
Athene cunicularia	Burrowing owl	CSC	Present	Open grasslands with sparse vegetation and few shrubs, gentle topography and well-drained soils	1-8

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Buteo swainsonii	Swainson's hawk	ST	Present	Grasslands, sage flats, or swaths for nesting; nest within trees, often the only tree in the area	6-13
Charadrius montanus	mountain plover	CSC, FTC	Present (winter only)	Breeds onen plains at moderate elevations; winters in short-grass plains and fields, plowed fields, and sandy deserts.	1-10
Circus cyaneus	northern harrier	CSC	Present	Breeds in wide open habitats from tundra to prairie grasslands; nests on ground in grasses or wetland vegetation	1-7
Elanus leucurus	white-tailed kite	SFP	Moderate	Commonly found in savanna, woodlands, marshes, desert grassland, partially cleared lands and cultivated fields; avoids areas with excessive winter freeze	1-13
Gymnogyps californianus	California condor	FE, SE	Not Likely to Occur	Nest in caves on cliff faces in mountains; scavenge in habitats ranging from Pacific beaches to mountain forests and meadows	NA
Haliaeetus leucocephalus	bald eagle	SE, FP	Not Likely To Occur	Nest in areas adjacent to large bodies of water; in winter can be seen in dry, open uplands near open water	NA
Lanius ludovicianus	Loggerhead shrike	CSC	Present	Open country with scattered shrubs and trees	1-9
Pooecetes gramineus affinis	Oregon vesper sparrow	CSC	High (winter only)	Breeds in Oregon; most often found in hilly margins of Willamette Valley; dry, upland prairies and pastures; winters over much of California	1-6
Xanthocephalus xanthocephalus	yellow-headed Blackbird	CSC	Low	Breed and roost in freshwater wetlands with dense, emergent vegetation; forage in fields	4-7
Mammals					

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Ammospermophilus nelsoni	San Joaquin antelope squirrel	ST	Present	Dry flat or rolling terrain on alluvial and loamy soils; grassy, sparsely shrubby ground	1-7
Antrozous pallidus	pallid bat	CSC	High (foraging)	Desert habitats with rocky outcrops for roosting	1-13
Corynorhinus townsendii	Townsend's big-eared bat	CSC	Low (foraging)	Pine forests and arid desert scrub habitats with caves nearby for roosting; may roost in abandoned buildings	1-13
Dipodomys ingens	giant kangaroo rat	FE, SE	Present	Arid gentle slopes and plains with variable vegetative cover and well-drained soils	1-6
Dipodomys nitratoides brevinasus	short-nosed kangaroo rat	CSC	High	Grasslands with scattered shrubs and desert shrub associations on loose soils	1-6
Dipodomys elephantinus	big-eared kangroo rat	CSC	Not Likely to Occur	Chaparral areas; most often under dense vegetation	5
Eumops perotis	western mastiff bat	CSC	Moderate (foraging)	Broad, open areas within dry desert washes, floodplains, grasslands, agricultural areas, and other habitats. Crevices in cliff faces, high buildings, trees or tunnels required for roosting	1-13
Onychomys torridus tularensis	Tulare grasshopper mouse	CSC	High	Arid shrubland communities in hot, arid grassland and shrubland associations.	1-7
Taxidea taxus	American badger	CSC	Present	Dry, open grasslands and brushlands with little groundcover.	1-10
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST	Present	Loose-textured soils within grasslands; habitat converted for urban uses are still utilized if remnants of native habitat are present.	1-10

FE = Federally Endangered. FT = Federally Threatened SE = State Endangered FTC = Federally Threatened Candidate

SFP = State Fully Protected CSC = California Species of Special Concern STC = State Threatened Candidate ST = State Threatened

Special-Status Plant Species with Potential to Occur

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Amsinckia vernicosa var *furcata*	forked fiddleneck	CNPS 4.2	High	Valley grassland and foothill woodlands	1-6
Androsace elongata ssp. *acuta*	California androsace	CNPS 4.2	Moderate	Slopes of chaparral, foothill woodlands, northern coastal scrub, and coastal sage scrub	4-6
Astragalus macrodon	Salinas milkvetch	CNPS 4.3	Low	Openings in chaparral, valley grasslands, and foothill woodlands; weak affinity to serpentine soil	1-6
Astragalus rattanii var. *jepsonianus*	Jepson's milkvetch	CNPS 1B.2	Low	Valley grasslands and foothill woodlands; strong affinity to serpentine soil	1-6
Atriplex cordulata	Heartscale	CNPS 1B.2	Low	Occurs in wetlands and non wetlands in shadscale scrub, valley grassland, and wetland-riparian communities; saline or alkaline soil	1-8
Atriplex coronata var. *coronata*	Crownscale	CNPS 4.2	Moderate	Vernal pools in shadscale scrub, valley grassland, freshwater wetlands, and wetland-riparian communities; usually occurs in wetlands	1-7
Atriplex depressa	Brittlescale	CNPS 1B.2	Low	Occurs in playas of shadscale scrub, valley grassland, alkali sink, and wetland-riparian communities; equally likely to occur in wetland and non wetlands; alkali soil	1-8
Atriplex joaquiniana	San Joaquin spearscale	CNPS 1B.2	Moderate	Meadows of shadscale scrub and valley grassland communities	1-6
Atriplex minuscula	Lesser saltscale	CNPS 1B.1	Low	Occurs in playas of shadscale scrub, valley grassland, and alkali sink communities; usually occurs in non wetlands	1-6
Atriplex subtilis	Subtle orache	CNPS 1B.2	Low	Valley and foothill grassland; often in vicinity of vernal pools; alkaline soils	1-6
Atriplex coronata var. *vallicola*	Lost Hills crownscale	CNPS 1B.2	High	Vernal pools in shadscale scrub, valley grassland, freshwater wetlands, and wetland-riparian communities; usually occurs in wetlands on alkaline substrates	1-6

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Blepharizonia plumosa	Big tarplant	CNPS 1B.1	Low	Often on slopes of valley grassland, foothill woodland, and chaparral; clay to clay-loam soils	1-6
California macrophylla	round-leaved filaree	CNPS 1B.1	High	Valley and foothill grassland, cismontane woodland; friable clay soils	1-6
Calyptridium parryi var. *hesseae*	Santa Cruz Mountains pussypays	CNPS 1B.1	Low	Sandy or gravelly openings of chaparral and foothill woodlands	1-6
Camissonia benetensis	San Benito evening-primrose	FT, CNPS 1B.1	Low	Serpentine-derived alluvial deposits in the vicinity of the Clear Creek Management Area in San Benito County	NA
Campanula exigua	chaparral harebell	CNPS 1B.2	Low	Talus slopes, occasionally other open places within chaparral communities; serpentine substrates	NA
Caulanthus californicus	California jewel-flower	FE, SE, CNPS 1B.1	Not Likely to Occur	Valley and foothill grassland, pinyon and juniper woodland, and chenopod scrub communities; subalkaline, sandy loam soils	1-6
Caulanthus coulteri var. *lemmonii*	Lemmon's jewel-flower	CNPS 1B.2	Moderate	Valley and foothill grassland, and pinyon and juniper woodland communities	1-6
Chorizanthe ventricosa	Potbellied spineflower	CNPS 4.3	Low	Mixed grassland communities, oak-pine woodlands; serpentine outcrops	1-6
Cordylanthus mollis ssp. *hispidus*	Hispid bird's-beak	CNPS 1B.1	Low	Meadows and playas of alkali sink, valley grassland, and wetland-riparian communities; generally occurs in wetlands; alkaline soils	1-6
Deinandra halliana	Hall's tarplant	CNPS 1B.1	High	Grassland, edges of alkali sinks, open muddy slopes; clayey soils	1-6
Delphinium californicum ssp. *interius*	California larkspur	CNPS 1B.2	Low	Foothill woodlands; usually occurs in non wetlands	1-6
Delphinium gypsophilum ssp. *gypsophilum*	gypsum-loving larkspur	CNPS 4.2	High	Slopes in valley grassland, alkali sink, foothill woodland communities	1-6
Delphinium recurvatum	recurved larkspur	CNPS 1B.2	Low	Annual grasslands or in association with saltbush scrub or valley sink scrub habitats; sandy or clay alkaline soils	1-6
Eriogonum gossypinum	cottony buckwheat	CNPS 4.2	Low	Shadscale scrub and valley grassland commmunities; clay soils	1-6

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Eriogonum temblorense	Temblor buckwheat	CNPS 1B.2	Moderate	Valley and foothills grassland, sandstone outcrops	1-6
Eriogonum vestitum	Idria buckwheat	CNPS 4.3	High	Saltbush scrub communities, steep shale slopes, occasionally on sandstone	1-8
Fritillaria falcata	talus fritillary	CNPS 1B.2	Low	Talus slopes in chaparral communities; endemic to serpentine soils	NA
Fritillaria viridea	San Benito fritillary	CNPS 1B.2	Low	Chaparral communities; endemic to serpentine soils	NA
Lagophylla diabolensis	Diablo Range hare-leaf	CNPS 1B.2	Moderate	Valley grasslands and foothill woodland communities	1-6
Layia discoidea	rayless layia	CNPS 1B.1	Low	Talus slopes and alluvial terraces within chaparral communities; serpentine soils	NA
Layia heterotricha	pale-yellow layia	CNPS 1B.1	High	Cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland communities; alkaline and clay soils	1-6
Layia munzii	Munz's tidytips	CNPS 1B.2	High	Shadscale scrub, valley grassland, and wetland-riparian communities; usually occurs in wetlands; alkaline or clay soils	1-8
Lepidium jaredii ssp. *Album*	Panoche pepper-grass	CNPS 1B.2	Moderate	Washes and alluvial fans of valley grassland communities	1-8
Leptosiphon ambiguus	Serpentine Linanthus	CNPS 4.2	High	Valley grassland, foothill woodland, and northern coast scrub communities; serpentine soils	1-6
Madia radiata	showy golden madia	CNPS 1B.1	High	Slopes of valley and foothill grasslands and foothill woodland communities; friable clay and calcium-rich soils	1-8
Malacothamnus aboriginum	Indian Valley bush malllow	CNPS 1B.2	Low	Open, rocky slopes and dry hills of chaparral and cismontane woodland communities	5-6
Monolopia congdonii	San Joaquin woollythreads	FE, CNPS 1B.2	High	Nonnative grassland, valley saltbush scrub, saltbush scrub, interior coast range saltbush scrub communities; neutral to subalkaline sandy or sandy-loam soils in San Joaquin Vallley.	1-6
Navarretia nigelliformis	adobe navarretia	CNPS 4.2	Moderate	Valley and foothill grasslands and wetland-riparian communities, generally found in wetlands; clay, sometimes serpentine soil	1-8

Scientific Name	Common Name	Status	Potential to Occur	Habitat	Potential Study Areas
Navarretia prostrata	prostrate vernal pool navarretia	CNPS 1B.1	Low	Vernal pools and alkaline floodplains of coastal sage scrub and wetland-riparian communities, occasionally in alkaline vallley and foothill grassland communities; usuallly occur in wetlands	1-8
Phacelia phacelioides	Mt. Diablo phacelia	CNPS 1B.2	Low	Chaparral and foothill woodland communities; strong affinity for serpentine soils	1-6
Senecio aphanactis	Chaparral ragwort	CNPS 2.B2	Low	Foothill woodlands, northern coastal scrub, and coastal sage scrub communities; often in serpentine soils	1-6

FE = Federally Endangered.

SE = State Endangered.

CNPS = California Native Plant Society.

1B = Plants that are rare, threatened, or endangered in California and elsewhere.

4 = A watch list of plants of limited distribution.

0.1: Seriously endangered in California.

0.2: Fairly endangered in California.

0.3: Not very endangered in California.

Appendix B

Photographic Log

Photographic Log

Photo 1: Study Area 1 from the southern study area boundary looking northwest.

Photo 2: Study Area 2 looking west from southeast study area boundary.

Photo 3: View of Study Area 2 facing northwest.

Photo 4: View of Study Area 3 facing northeast.

Photo 5: Small drainage along eastern boundary of Study Area 3.

Photo 6: View of southern portion of Study Area 3 facing west.

Photo 7: View of Study Area 4 facing north.

Photo 8: Study Area 4 facing east/northeast from southern portion of study area.

Photo 9: Study Area 4 facing west from access road.

Photo 10: View of Study Area 4 facing west.

Photo 11: View of Study Area 5 facing west from eastern portion of study area.

Photo 12: Study Area 5 facing west/northwest.

Photo 13: View of Study Area 5 facing east.

Photo 14: Study Area 6 facing southeast.

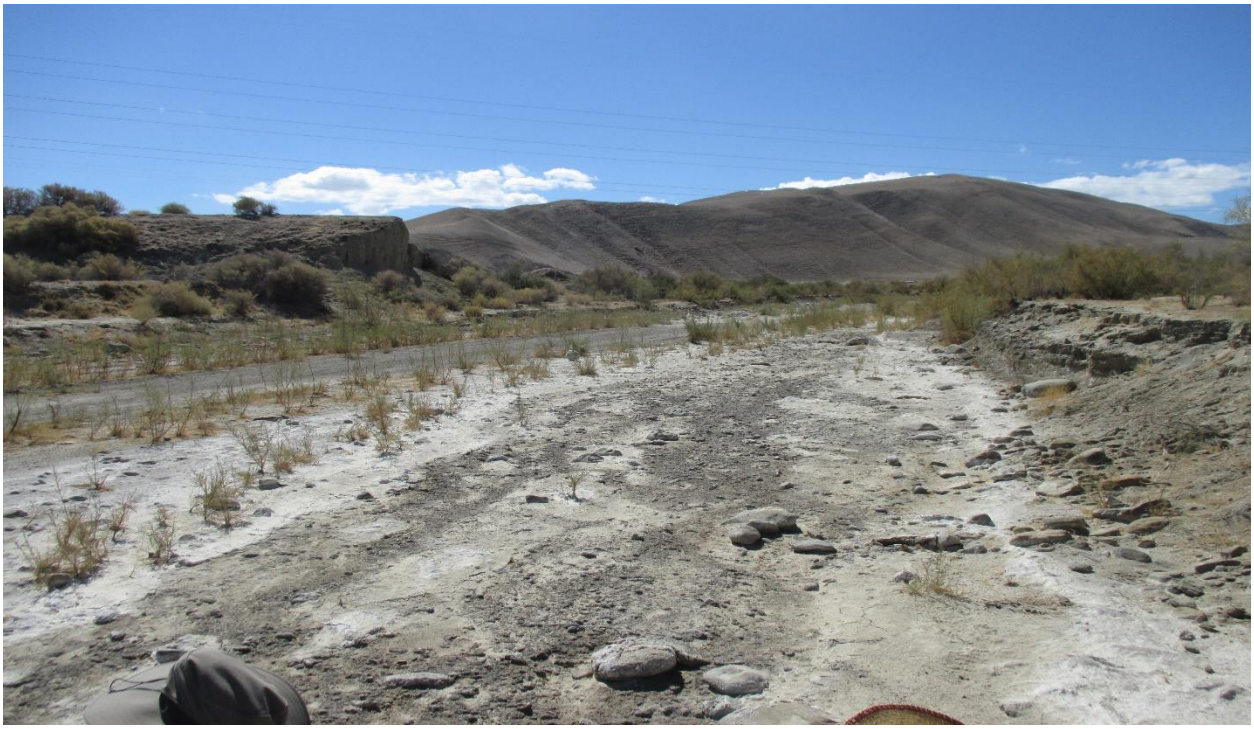

Photo 15: Northwestern portion of Study Area 6 within Panoche Creek bed.

Photo 16: View facing east from wetland soil data point within Panoche Creek in Study Area 6.

Photo 17: View facing south from upland soil data point in Study Area 6.

Photo 18: View of central portion of Study Area 6 facing east.

Photo 19: View of Study Area 6 facing north.

Photo 20: View of well-maintained crop rows within Study Area 7.

Photo 21: View of Study Area 7 taken from Study Area 6 facing east.

Photo 22: Southern portion of Study Area 8 taken from central cleared portion of study area.

Photo 23: View of Panoche Creek located in northern portion of Study Area 8.

Photo 24: View of well-maintained almond orchards of Study Area 9.

Photo 25: View of Study Area 9 facing east.

Photo 26: View of southeast quarter of Study Area 10 facing north.

Photo 27: View of southwest quarter of Study Area 10 facing south.

Photo 28: View of southeast quarter of Study Area 10, facing south.

Photo 29: View of northeast quarter of Study Area 10 facing north.

Photo 30: View of northwest quarter of Study Area 10 facing north.

Photo 31: Northern portion of Study Area 11 facing west showing recreational area and orchards.

Photo 32: View of vineyards within southern portion of Study Area 11.

Photo 33: View of Study Area 12 facing east/southeast.

Photo 34: View of northern portion of Study Area 12 within almond orchards.

Photo 35: View of Study Area 12 facing west along West Panoche Road.

Photo 36: View of Study Area 13 facing west towards Panoche Substation.

Photo 37: Cleared area within central portion of Study Area 13.

Appendix C

Vegetation List by Work Area

Vegetation by Study Area

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 1	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Brassicaceae	*Caulanthus*	*californicua*	California jewel flower
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Hordeum*	*murinum*	barley
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Solanum*	*xanti*	nightshade
	Zygophyllaceae	*Tribulus*	*terrestris*	puncture vine
Study Area 2	Asteraceae	*Holocarpha*	*virgata* ssp. *virgata*	tarplant
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Chenopodiaceae	*Atriplex*	*rosea*	tumbling orach
	Chenopodiaceae	*Atriplex*	*polycarpa*	allscale saltbush
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Lamiaceae	*Trichostema*	*lanceolatum*	vinegar weed
	Poaceae	*Avena*	*fatua*	wild oat
	Poaceae	*Bromus*	*madritensis*	red brome
	Poaceae	*Bromus*	*hordeaceus*	soft chess
	Poaceae	*Distichlis*	*spicata*	salt grass
	Poaceae	*Hordeum*	*murinum*	barley
Study Area 3	Asteraceae	*Holocarpha*	*virgata* ssp. *virgata*	tarplant
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Chenopodiaceae	*Atriplex*	*rosea*	tumbling orach
	Chenopodiaceae	*Atriplex*	*polycarpa*	allscale saltbush
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 3	Lamiaceae	*Trichostema*	*lanceolatum*	vinegar weed
	Polygonaceae	*Eriogonum*	*angulosum*	angle-stem wild buckwheat
	Poaceae	*Avena*	*fatua*	wild oat
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Bromus*	*hordeaceus*	soft chess
	Poaceae	*Distichlis*	*spicata*	salt grass
	Poaceae	*Hordeum*	*murinum*	barley
Study Area 4	Asteraceae	*Ericameria*	*linearifolia*	interior goldenbush
	Asteraceae	*Deinandra*	sp.	Potential rarity*
	Asteraceae	*Gutierrezia*	*californica*	California matchweed
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Boraginaceae	*Phacelia*	*tanacetifolia*	tansy phacelia
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Ephedraceae	*Ephedra*	*californica*	California ephedra
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Lamiaceae	*Salvia*	*columbariae*	chia
	Lamiaceae	*Trichostema*	*lanceolatum*	vinegar weed
	Polemoniaceae	*Navarretia*	sp.	Potential rarity*
	Polygonaceae	*Eriogonum*	*fasciculatum*	California buckwheat
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Schismus*	*arabicus*	Mediterranean grass
	Poaceae	*Poa*	*secunda* ssp. *secunda*	one-sided blue grass
Study Area 5	Asteraceae	*Centaurea*	*melitensis*	tocalote
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Chenopodiaceae	*Atriplex*	*rosea*	tumbling orach
	Chenopodiaceae	*Atriplex*	*polycarpa*	allscale saltbush
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Plantaginaceae	*Plantago*	*ovata*	plantain
	Polygonaceae	*Eriogonum*	*angulosum*	angle-stem buckwheat
	Polygonaceae	*Eriogonum*	*fasciculatum*	California buckwheat
	Poaceae	*Bromus*	*diandrus*	ripgut brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Schismus*	*arabicus*	Mediterranean grass
	Poaceae	*Poa*	*secunda* ssp. *secunda*	one-sided blue grass
Study Area 6	Asteraceae	*Gutierrezia*	*californica*	california matchweed
	Asteraceae	*Isocoma*	*acradenia* var. *bracteosa*	alkali goldenbush
	Asteraceae	*Stephanomeria*	*pauciflora*	wirelettuce
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Boraginaceae	*Heliotropium*	*curassavicum* var. *osculatum*	alkali heliotrope
	Chenopodiaceae	*Atriplex*	*rosea*	tumbling orach

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 6	Chenopodiaceae	*Atriplex*	*polycarpa*	allscale saltbush
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Plantaginaceae	*Plantago*	*ovata*	plantain
	Polygonaceae	*Eriogonum*	*angulosum*	angle-stem buckwheat
	Polygonaceae	*Eriogonum*	*fasciculatum*	California buckwheat
	Poaceae	*Bromus*	*diandrus*	ripgut brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Distichlis*	*spicata*	saltgrass
	Poaceae	*Hordeum*	*murinum*	barley
	Poaceae	*Polypogon*	*monspeliensis*	annual beard grass
	Poaceae	*Poa*	*secunda* ssp. *secunda*	one-sided blue grass
	Tamaricaceae	*Tamarix*	*ramosissima*	saltcedar
Study Area 7	Punicaceae	*Punica*	*granatum*	pomegranate
	Vitaceae	*Vitis*	*vinifera*	wine grape
Study Area 8	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Asteraceae	*Baccharis*	*salicifolia* ssp. *salicifolia*	mule fat
	Asteraceae	*Isocoma*	*acradenia* var. *bracteosa*	alkali goldenbush
	Asteraceae	*Sonchus*	*oleraceus*	common sow thistle
	Asteraceae	*Xanthium*	*strumarium*	cocklebur
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Boraginaceae	*Heliotropium*	*curassavicum* var. *osculatum*	alkali heliotrope
	Chenopodiaceae	*Atriplex*	*lentiformis*	big saltbush
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Poaceae	*Bromus*	*diandrus*	ripgut brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Nicotiana*	*glauca*	tree tobacco
	Tamaricaceae	*Tamarix*	*ramosissima*	saltcedar
Study Area 9	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Poaceae	*Poa*	*annua*	annual blue grass
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Sporobolus*	*airoides*	alkali sacaton
	Solanaceae	*Solanum*	*xanti*	nightshade

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 10	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Asteraceae	*Ambrosia*	*acanthicarpa*	annual bur-sage
	Asteraceae	*Helianthus*	*californicus*	California sunflower
	Asteraceae	*Isocoma*	*acradenia* var. *bracteosa*	alkali goldenbush
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Hirschfeldia*	*incana*	summer mustard
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Chenopodium*	*sp.*	
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Myrtaceae	*Eucalyptus*	*camaldulensis*	red gum
	Palmae			Introduced Palm
	Poaceae	*Avena*	*fatua*	wild oats
	Poaceae	*Bromus*	*diandrus*	ripgut brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Distichilis*	*spicata*	saltgrass
	Poaceae	*Hordeum*	*murinum*	barley
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Nicotiana*	*glauca*	tree tobacco
	Solanaceae	*Solanum*	*xanti*	nightshade
	Zygophyllaceae	*Tribulus*	*terrestris*	puncture vine
Study Area 11	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Cressa*	*truxilliensis*	alkali weed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Martyniaceae	*Proboscidea*	*lutea*	unicorn plant
	Poaceae	*Bromus*	*carinatus*	California brome
	Salicaceae	*Salix*	*gooddingii*	Goodding's black willow
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Tamaricaceae	*Tamarix*	*ramosissima*	saltcedar
Study Area 12	Asteraceae	*Erigeron*	*canadensis*	horseweed
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed

Study Area	FAMILY	GENUS	SPECIES	COMMON NAME
Study Area 12	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Poaceae	*Avena*	*fatua*	wild oat
	Poaceae	*Cynodon*	*dactylon*	Bermuda grass
	Poaceae	*Hordeum*	*murinum*	barley
	Salicaceae	*Populus*	*fremontii*	Fremont's cottonwood
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Solanum*	*xanti*	nightshade
	Zygophyllaceae	*Tribulus*	*terrestris*	puncture vine
Study Area 13	Amaranthaceae	*Amaranthus*	*blitoides*	procumbent pigweed
	Asteraceae	*Erigeron*	*canadensis*	horseweed
	Asteraceae	*Lactuca*	*serriola*	prickly lettuce
	Boraginaceae	*Amsinckia*	*intermedia*	common fiddleneck
	Brassicaceae	*Lepidium*	*nitidum*	shiny peppergrass
	Cactaceae	*Opuntia*	*ficus-indica*	Mission prickly pear
	Chenopodiaceae	*Atriplex*	*roseum*	tumbling orach
	Chenopodiaceae	*Chenopodium*	*album*	lamb's quarter
	Chenopodiaceae	*Salsola*	*tragus*	Russian thistle
	Convolvulaceae	*Convolvulus*	*arvensis*	bindweed
	Convolvulaceae	*Cressa*	*truxilliensis*	alkali weed
	Euphorbiaceae	*Chamaesyce*	*ocellata* ssp. *ocellata*	prostrate spurge
	Euphorbiaceae	*Croton*	*setigerus*	dove weed
	Geraniaceae	*Erodium*	*cicutarium*	redstem filaree
	Lamiaceae	*Trichostema*	*lanceolatum*	vinegar weed
	Malvaceae	*Malva*	*parviflora*	cheeseweed
	Onagraceae	*Epilobium*	*sp.*	
	Poaceae	*Avena*	*fatua*	wild oat
	Poaceae	*Bromus*	*carinatus*	California brome
	Poaceae	*Bromus*	*madritensis* ssp. *rubens*	red brome
	Poaceae	*Cynodon*	*dactylon*	Bermuda grass
	Poaceae	*Hordeum*	*murinum* ssp.	barley
	Salicaceae	*Populus*	*fremontii*	Fremont's cottonwood
	Solanaceae	*Datura*	*wrightii*	Jimson weed
	Solanaceae	*Solanum*	*xanti*	nightshade
	Zygophyllaceae	*Tribulus*	*terrestris*	puncture vine

* Could not be identified to species due to poor condition of specimens and season

Appendix D

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: PVS Study Area 6 City/County: NA/Fresno Sampling Date: 9/18/2014

Applicant/Owner: PV2 State: CA Sampling Point: Wetland 1

Investigator(s): Russell Kokx, Morgan Edel, Julianne Wooten Section, Township, Range: S16, T15S, R12E

Landform (hillslope, terrace, etc.): dry creek bed Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): _____ Lat: 36.626284° Long: -120.661358° Datum: NAD83

Soil Map Unit Name: Cerini-Anela-Fluvaquents, saline-Sodic association NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Panoche Creek

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size:1 m)			
1. *Distichlis spicata*	25	yes	FAC
2. *Polypogon monspeliensis*	20	no	FACW
3. *Tamarix ramosissima*	5	no	FAC
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	20	x2 =	40
FAC species	30	x3 =	90
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	50 (A)		130 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: PVS Study Area 6

SOIL Sampling Point: Wetland 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
4	2.5Y 5/4	100					loamy sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Point within Panoche Creek inundated only after storm event.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☒ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: PVS Study Area 6 City/County: NA/Fresno Sampling Date: 9/18/2014

Applicant/Owner: PV2 State: CA Sampling Point: Upland 1

Investigator(s): Russell Kokx, Morgan Edel, Julianne Wooten Section, Township, Range: S16, T15S, R12E

Landform (hillslope, terrace, etc.): dry creek bed Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): _____ Lat: 36.626357° Long: -120.661423° Datum: NAD83

Soil Map Unit Name: Cerini-Anela-Fluvaquents, saline-Sodic association NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒			
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarix ramosissima*	30	yes	FAC
2.			
3.			
4.			
50% = _____, 20% = _____	30	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size:i m)			
1. *Bromus madritensis*	20	no	FACU
2. *Erodium cicutarium*	10	no	FACU
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	30	x3 =	90
FACU species	30	x4 =	120
UPL species	_____	x5 =	_____
Column Totals:	60 (A)		210 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: PVS Study Area 6

SOIL

Sampling Point: Upland 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
8	10YR 4/4	100					sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
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- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
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- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: